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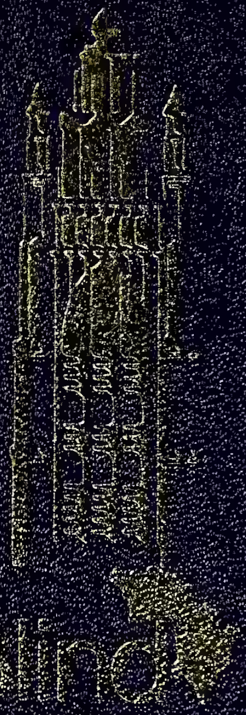
on
Visually Handicapped Infants
and Young Children

Shefayim, Israel
June 14-19, 1981



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of the

International Symposium

on

Visually Handicapped Infants and Young Children:

Birth to Seven

"IN THE BEGINNING..."

KIBBUTZ SHEFAYIM, ISRAEL

JUNE 14-19, 1981

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The Symposium was held within the framework of the United Nations International Year of Disabled Persons 1981.

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TO THE READER

The aim of the Symposium was to bring together professionals (in various disciplines) and parents in order to stimulate useful discussions on ways and means to promote child progress, share new techniques, and encourage improvement of services for young blind and visually handicapped children and their families.

The Symposium was made possible through the cooperative efforts of a great many people and agencies. We would like to express our gratitude and thanks to the following agencies and persons who made the Symposium a success:

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The Perkins School for the Blind supported the development of the Symposium and has made possible this publication of the Proceedings. In addition, Perkins has made arrangements such that a portion of any proceeds derived from the sale of these Proceedings -- beyond printing and distribution costs -- go to continuing the work of the IIVI, 0-7, Inc.

GOALS OF THE SYMPOSIUM

1. To create an awareness of the special needs of visually handicapped infants and young children.
2. To share information on needs, problems, programs and services.
3. To develop a means of communication among professional persons and agencies.
4. To develop advocacy for visually handicapped infants and young children.
5. To promote research in prevention, intervention and adaptation.

The purpose of the Israel Society for Rehabilitation of the Disabled is to work towards an improved consciousness of rehabilitation by professionals and the general public in Israel.

The purpose of the International Instutute for Visually Impaired, 0-7, Inc. is to promote, foster, encourage, and develop activities and programs pertaining to any and all areas of growth, development, education, and welfare of preschool visually impaired children world-wide.

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IN THE BEGINNING...... THE FAMILY

Cyril P. Legum, M.D.
(Israel)

I am a pediatrician whose specialty is medical genetics. My involvement is with families rather than with individual patients. In our work the beginning frequently precedes the immediate family or individual and goes back to the pregnancy, the period of sperm and ova production preceeding conception, or even to the patient's forebears for several generations or several centuries.

Genetic counseling has been defined as the process whereby an individual or a family obtains information about a real or possible genetic problem (1). The people who ask are known as "consultands" and are usually parents, prospective parents, close family or a would-be spouse. Sometimes the individual who is the problem is also the consultand. The real or possible genetic problem may be a hypothetical pregnancy, an unborn fetus, a child with a physical, neuromotor or mental handicap, or an adult in whom puberty has failed to occur or one who is unable to procreate or is suffering from a chronic illness. This real or imaginary person is known as a "proband" or an "index case".

The process of genetic counseling involves several phases:

1. The first interview with the consultands usually consists of gathering information about the proband and constructing a family tree. We often examine the proband at this interview, carefully recording and measuring parameters of growth and development. At this stage it is extremely important for the counselor to assess the strengths and weaknesses of the family-psychological, economic and others-in order to plan a strategy to enable the child and his family to cope with the future.
2. The second phase is to verify and process the information obtained. Letters signed by parents releasing medical information are sent to the various hospitals, clinics, and other facilities where the patient or family members have undergone tests or received treatment. The results of the physical examination are carefully compared to normative data for peer groups. A medical diagnosis is established, often with the help of a medical literature search or a computerized data base. The degree of the handicap and the family's strengths and weaknesses are evaluated in a team setting with doctors, therapists, social workers, psychologists and special educationists. A short-term and long-term strategy is planned, and only then are we ready for the second meeting with the family.
3. The third phase consists of communicating the diagnosis and strategy to the patient and his family. This may be done by a counselor, together with a physician, or one or more of the other team members. This session is often very highly charged with emotion. Sufficient time for a full interview must be available, and the counselor should be well aware of the dynamics of reaction to crisis. It is important to stress the child's positive attributes.
4. The final phase may continue for several years and is the phase of implementation of the strategy which was planned in the previous phase. This is frequently modified during the interview, as members of the family now become equal partners in the team, and they may veto any part of the strategy. Any decision on treatment and future childbearing is solely theirs to make. Our responsibility is to make sure that they are well educated in the facts, implications, and possible consequences of their problem. Thus genetic counseling is basically an educational process.

Genetic counseling for visual handicaps follows general principles, but there are several points which should be stressed:

1. Crisis intervention should take place within 24 hours of the birth of an infant with an eye malformation, and even in the delivery room if possible. In the case of severe bilateral microphthalmia the chances are that there are no other severe malformations, and the infant's positive attributes can be stressed. However, when the eye malformation is part of a syndrome of multiple malformations, an honest estimation of the risk of additional handicaps is called for. It is essential that the counselor has much experience in evaluating birth defects, and it is of help if the social worker is also present at this first encounter. Both should be aware of the range of psychological reactions to crisis. These often resemble the process of mourning and may continue for a period of six months or longer. Both parents rapidly enter a stage of shock in which communication may become impossible. Fathers frequently show anger, anxiety, and denial. Mothers may feel guilt, grief, sorrow, and depression. After a variable period the parents are prepared to bargain, accept, and take positive action. This may take the form of seeking further information on the medical, educational, and social aspects of blindness. At this stage many parents are willing to participate in group discussions with other parents and with professionals.
2. Studies on the epidemiology of childhood blindness have shown a preponderance of environmental causes in developing countries and about equal numbers of patients affected by environmental and by genetic causes in more developed countries (2-6).

Important preventable environmental causes are trachoma, river-blindness (onchocerciasis), xerophthalmia (vitamin A deficiency), and Rubella. Satisfactory control of Toxoplasmosis infections of the fetus and the prevention of retrolental fibroplasia have not yet been achieved. The genetic disorders can be divided into those caused by changes in genes and those caused by changed in chromosomes.

The single gene disorders may show a predeliction for males (X-linked recessive) or affect both sexes equally (autosomal).

Of the autosomal genes, some are dominant over the normal "partner" gene and some are recessive to the normal partner gene. Knowledge of the pattern of inheritance of a gene allows us to estimate the recurrence risk of various genetic causes of blindness. For example, retinal aplasia, accounting for approximately 10% of "genetic blindness", is usually transmitted by an autosomal recessive gene. The parents are both carriers, and for each of their mutual preganacies the risk of another affected child is high (25%). Should the affected child marry a person with normal vision, there is no increase in risk for an affected child. The same applies to the siblings. In autosomal dominant conditions, unaffected parents usually means that the affected child is a result of a new gene mutation in the gonads of one of the parents. Such parents have no increased risk of additional affected children, but should the affected child eventually become a parent, the risk of an affected baby is high (50%). We have no means of detecting an affected fetus. In X-linked recessive conditions we can offer to determine the sex of the fetus and, in the event of a male, terminate the pregnancy. 50% of these males would have been unaffected. 50% of these females will be carriers of the gene which may result in blindness in their male children.

In autosomal recessive conditions the parents have 4 alternatives: To take a high risk or not to procreate further, or to adopt a child or opt for artificial insemination. The decision is entirely theirs.

In the case of chromosomal lesions the risk of recurrence is about 1% and intrauterine diagnosis is fairly simple.

At a recent symposium organized by professional workers with blind children and the childrens' parents, some of the following questions were asked:

1. Does special education lead to increased social isolation of the child?
2. Do small compartments lead to subsequent administrative neglect?

3. Should limited resources be used in an extensive manner for surveys and personnel instruction or in an intensive manner - for the immediate needs of individuals and service facilities?
4. Should disgnosis preceed treatment, or are they interdependant in a dynamic process?
5. How does one deal with temperament variables, cultural stigma, parental over-protection and allocation of time to the various problems of special education of blind children?
6. Is "instinctive" learning to be encouraged over "imposed" learning?

I am sure that the expertise of the participants in this conference will do much to help answer these and other questions within the next few days.

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A REPORT ON THE CONDITION OF BLIND INFANTS AND YOUNG BLIND PEOPLE IN AFRICA

Sr.Theresa B.Abang, Ph.D
(Africa)

In Nigeria, as in most countries of Africa, the care of visually handicapped infants is still very inadequate and, in some cases, almost nonexistent.

The perceptions of most Africans of blind infants are rather negative. For most Africans, blindness is perceived as a serious evil which cannot befall anyone except as a punishment for some offense committed against God or another human being. A blind infant, born into a family, therefore is viewed as a pointer that someone in that family had sinned grievously against God, who in His justice is punishing these individuals for the sin by sending them a blind infant. The parents, therefore, may adopt one of these attitudes towards the infant: The parents may become overprotective of the child, having been conditioned to believe that they are paying for some sin committed in the past. Such children may grow up to be entirely dependent on the family and family relatives.

Unfortunately, because of the stigma attached to these blind infants, parents of normal children in the neighbourhood may even prohibit their normal children from playing with the blind infants for fear that they too may become blind. On the other hand, overprotective parents may not allow their blind infants out to play with other normal children for fear of them getting hurt. Consequently, the infant may grow up without adequate social skills or language development skills. Again, there are parents of blind infants who, in an effort to let the people know that they are innocent as far as their child's blindness is concerned, may become hostile to the child and may refuse to meet the child's basic needs which are love, security, and food.

One other problem facing blind African infants is easy identification. This problem is found more among illiterate parents who form the greater segments of the African population. The problems of blindness at birth are not so difficult to detect when the infant is born in a hospital with the assistance of a qualified medical practitioner. The problem of identification becomes more acute with babies born at home without the assistance of a medical practitioner. Most often parents of blind infants may not be in a position of detecting the blindness until one or two weeks after birth. It is a popular belief among most African tribes that newly born babies do not begin to see visually until they are two to three weeks old. Hence it is not surprising to find that most poeple fail to recognise that the child is blind. When parents first realise that their child is blind, generally the reaction is that of shock and dismay and even disbelief. The questions that are generally asked are: Who has done this to us? What is responsible for this? Why us anyway? There are some African parents who believe that an enemy had brought about their infant's blindness. It is not unusual to find parents of a blind child wasting their energy blaming each other. In some cases, in an effort to find out the one who is responsibile for their child's blindness, they may take to consulting soothsayers or fortune tellers. The common replies generally received are: gods are annoyed because you have failed to do their will, or an enemy is responsible. It is therefore not uncommon to find parents who spend most of their money offering one sacrifice after another in an effort to appease the gods to withdraw the curse. Others will go from one herbalist to another in search of a cure for the child. This is generally in the form of liquids extracted from herbs, which are put into the child's eyes as a form of medication. Unfortunately, sometimes the eyes get more infected by the use of these herbs. Little do most parents realise that these children need more than a cure which they seek and which they may never find. The child, more than anything else, needs love, care, and the development of the rest of his senses.

Apart from the fact that some African infants are born blind, most children also go blind during the early years of life. The major causes of this are diseases. These include measles and trachoma. Surprisingly, onchocerciasis is not the major source of blindness as was believed by many people. A survey was carried out in 1979 by the Department of Special Education of the University of Jos, Nigeria, to ascertain the major cuase of blindness. The survey revealed that the major cause of blindness is measles. This is because most of the children in the villages do not get the opportunity of receiving immunization against measles. Unfortunately, in the event of measles attack, most children are brought to the herbalist instead of a medical practitioner.

It is interesting to know that when any blind infant is accepted into the family, the infant enjoys all the privileges enjoyed by other siblings in the family who have no visual difficulties. One of these privileges is to enjoy the physical contact of the mother by being carried on the mother's back most of the time.

It is not unusual to see the mother of a blind infant with her infant securely tied on her back while doing her usual housework. This physical contact, no doubt, enables the infant to develop a sense of security, love, and belongingness. This sense of belongingness is further strengthened by the fact that members of his extended family visit his immediate family and often bring gifts to the members of the family. Gradually, the blind infant learns to recognise each one of his relations by name and by their voices. Again, because of the physical contact of the mother and the blind infant, the African infant tends to develop less mannerisms than blind infants in most industrialized countries.

The most urgent need of African blind infants today is the lack of educational facilities made available to them. Most importantly, there are no assessment centers nor counselling centers for parents of blind infants. Consequently, parents are at a loss as to what to do and where to go for help. Even where there happen to be nursery schools for blind infants, often these are poorly equipped in terms of personnel and materials. Funds are not readily available to equip these centers with learning and teaching materials.

However, one will still need to recommend the efforts of a few African governments who, having recognised the need for the education of handicapped infants and young people, are setting up programmes for this group of children. In this context, mention can be made of the Plateau State Government of Nigeris, which has earmarked half a million Naira for the establishment of a center for handicapped infants and young people. The center will be responsible for the assessment and education of these children and, where possible, for adequate placement. The center shall also serve as a counselling center for blind parents.

It is hoped that other governments, not only in Nigeria but in Africa at large, will follow the example of the Plateua State of Nigeria by establishing similar centers for handicapped infants in their countries.

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LATIN AMERICAN REGION OF THE I.C.E.V.H.

Susana E. Crespo
(Argentina)

Latin America is a very large continent composed of 18 countries, two European colonies, and a great many islands which give shape to the Caribbean Sea. It extends from Mexico, which is part of North America, to the southern end of Argentina. Its population is very heterogeneous; its cultural levels differ greatly; and its human and economic resources vary according to the possibilities each country has. Its geography, economic difficulties, and problems of communication impede the development of vast regions of the continent, where modern civilization does not reach.

To these factors we must add the lack of economic wealth and of technically and scientifically trained people in the field of special education, all of which contributes to the poor services that, generally speaking, are offered to the visually handicapped individuals.

In every Latin American country there are schools for blind children, but the programs these schools provide differ greatly from one country to another.

Blind children are scattered all along the large continent, making it difficult to identify and localize them so as to offer them early educational services. Usually the special schools are situated in the main cities, so it is hard for parents and relatives of visually handicapped infants to be promptly aware of the educational possibilities their children have or the opportunities they may have available to obtain such education.

Generally speaking, the schools offer kindergarten programs to children over 5 years, although very few at this age are enrolled in the educational settings for the reasons mentioned above and/or because parents feel the children are too small to be away from home. Integrated education exists in very few countries and at a small scale, so that the average age children enter school is 8 or 10.

SURVEY

In order to have updated information regarding the educational situation of small blind children aged 0-7, a survey was made among all the schools and educational centers known by me in the Latin American Region. Out of 16 countries consulted and of 30 surveys made, only 8 countries replied, making in total 19 answers.

The items covered were:

1. If there are special services for blind children aged 0-7 and number of children in each age group.
2. Short description of services.
3. Staff in charge of the services (physicians, psychologists, social workers, etc.).
4. Most frequent causes of blindness among those children.
5. Approximate number of blind children under 7.
6. If the children are only blind or multiply handicapped.
7. What measures does the State or the community take to cover the needs of the visually handicapped infants.
8. What sort of programs for prevention of blindness in infants are developed.

The information received, that cannot be considered a sample, shows that very little is being done in Latin America regarding services to visually handicapped infants, especially those under.

Analysing the answers I dare to say:

Item 1. Special services for blind infants: the replies reveal that in every school children attend kindergarten from 5 years up, although the number of children enrolled is quite small (2 to 5, 4 to 8). Programs for smaller children and babies exist only in Mexico and in two schools in Argentina. In one country, a program for blind children from birth will start next year.

Item 2 - 3. Description of services - Staff in charge: The responses differ greatly according to the possibilities of each institution. In very few (3) there is a complete medical, psychological, and educational staff that carries out a comprehensive program. In the others, the services are rendered through the social worker or the teachers who visit the homes of the visually impaired children and try to give guidance and counsel to the children's families. These services are neither regular nor follow a definite process.

Item 4. Most frequent causes of blindness:

Central American countries report, as main causes: congenital cataracts, congenital glaucoma and toxoplasmosis.

Guatemala adds, to these causes, xerophthalmia.

Mexico mentions optic atrophy and cataracts;

Colombia: glaucoma, toxoplasmosis, cataracts;

Argentina puts, in first place, retrolental fibroplasia, followed by congenital cataracts and retinoblastoma.

Chile: congenital cataracts, glaucoma and retrolental fibroplasia.

There is no doubt that the causes and the incidence of blindness depend, greatly, on the sanitary and socio-educational level of the country.

Item 5. Number of blind children under 7: Only one school in Mexico reported that in the country there may exist about 1,500 blind children between 0 and 7. In this school there are 40 children, between 3 and 7, enrolled. The other countries informed that they do not have any reliable data on this matter.

Item 6. If the children had other handicaps besides blindness: All the replies agree that the majority of these infants suffer other disabilities: mainly mental retardation, deafness, neurological and/or motor disorders.

Item 7 - 8. Measures taken by the state to cover the needs of the blind infants - prevention programs: In the countries where there are state or private institutions for the prevention of blindness this is done through sanitary and family education, public information, and early treatments. The prevention programs, some of them developed at a very small scale, do not reach, however, the far and hidden regions where the incidence of blindness is greater.

In brief, an analysis of the situation of blind infants in Latin America shows that the needs of visually handicapped children under 5 years, except in two countries, are not met by coherent and well-orientated programs. Early stimulation and parent counselling is something new among school principals and teachers who are too much involved in the problems of educating older blind children. Lack of professionally trained staff and of economic resources hinders the development of such programs. Children from 5 to 7 years receive some kind of formal education in kindergarten, either in special schools or in integrated programs in the few countries where this system operates.

Governments do not take whole responsibility of the problems blindness implies and do not facilitate prevention and early educational programs to satisfy the needs and the rights of the blind population.

Attention must be paid, also, to the multiply impaired infants; their amount increases at great speed and provisions are not being taken to offer them any sort of rehabilitation.

ISRAEL

Nathan Dickstein
(Israel)

The preschool visually impaired child and his family are in need of a variety of services in areas such as health and medicine, psychological and social services, and education. Research in early development shows that the preschool years are the most important learning years. Every child is affected by experiences which help determine physical, emotional, social, and intellectual development. The visually handicapped child has the same basic needs and feelings as other children. However, factors which relate to the visual handicap, which hinder a child's opportunities to discern relationships and to establish perceptual experiences necessary for normal development, can produce lags in these developmental areas.

The blind child does not automatically compensate by overdeveloping other senses and must be taught to use them systematically. It is also true that the visually handicapped population is extremely heterogeneous and the characteristics of blind children are varied. This is why preschool individualized intervention programs of instruction and sensory stimulation are necessary to optimize development. Parental involvement in early intervention programs is also an essential prerequisite for success.

In the past, organized services and programs for visually impaired preschool children in Israel were not as developed or as comprehensive as they are today. The Department of Services for the Blind has made a special effort to improve the preschool services for the visually handicapped child in the past few years. The number of known blind children in Israel ages birth to seven years is approximately 200.

Although Israel does not have a mandatory reporting of visual impairment to an appropriate Government Agency, we do issue certificates to legally blind people. These certificates are issued when a request for services through the Department of Services for the Blind is made. In this way, we are able to maintain a register of all those who have requested services. This may not cover all the legally blind in Israel, but covers a large majority.

One of our major services is the Home Teachers Division of the Migdalor Rehabilitation Center. This service is available through the Department of Services for the Blind and is available to all visually handicapped people from birth through old age. Practically all preschool children have had the use of this service at one time or another and therefore all these children are registered at one of the Ministry's District Offices.

The Home Teachers Division has been serving the visually handicapped since 1959. In 1978, with the financial help of the American Joint Committee in Israel, a Professional Training Course under the auspices of the Haifa University was completed and there are presently 40 home teachers working throughout the country. The Home Teachers Division has served approximately 600 persons of all ages in the last year, of which about 110 were visually impaired children ages birth through seven out of the known total number of children. The Home Teachers work with the children in the following areas:

(1) Educational frameworks such as Child Care Centres and Kindergartens.
(2) Parental instruction.
(3) Instruction of the child.
(4) Special programmes such as the Summer Day Camp Programme in Jerusalem and Tel Aviv.

There are four main child development centers in Israel:

(1) The Hanna Houshi Developmental Pediatrics Center at the Rothschild Hospital In Haifa.
(2) The Institute for Child Development at the Tel Hashomer Hospital in Tel Aviv.
(3) The Jerusalem Center for Child and Family Developmental Rehabilitation in Jerusalem.
(4) The Children's Unit of the Rehabilitation Center in Beer Sheba.

The Centers have different programs to meet the different and individualized needs of the visually impaired children in each area. Each Center has a multi-professional staff that includes a physician, a psychologist, a social worker, paramedical specialists and a kindergarten teacher as well as consultants on a part-time basis who work in close cooperation with the Home Teachers Unit.

Some of the Services at the Centers include:

(1) Diagnostics and assessment.
(2) Half-day nursery school programs for sensory stimulation, education and treatment groups.
(3) Group and individual counselling for parents.
(4) Preparation for integration into a regular educational framework.
(5) Special treatment programs such as music therapy, physical or occupational therapy, etc.
(6) Liaison for community and other resources.

The whole area of low vision is relatively new to us here in Israel. However, the Jerusalem Center for the Counselling and Visual Rehabilitation of Children was established in October 1976 for the purpose of rehabilitating children with severely impaired sight, by means of optical aids and reeducation. It is the only center of its kind in Israel. It serves children up to the age of sixteen. The interdisciplinary staff is directed by Professor Nevratzky and includes two ophthalmologists, an optometrist, a clinical psychologist and a social worker. The center is part of the Jerusalem Institute for the Prevention of Blindness, headed by Professor Isaac Michaelson. The Center receives referrals from all over the country and has since its opening examined approximately 650 children. The work of the center can be divided into six broad areas:

(1) Examinations and Diagnosis.
(2) Correction and Rehabilitation.
(3) Follow-up and consultation with social service agencies and school authorities.
(4) Teaching programmes for professionals with interest in low vision.
(5) Vision Stimulation Program - a reeducation program using a closed circuit TV system for helping children to read text book material whose print is too small for their visual capabilities.
(6) Genetic Counselling Services.

Now I would like to describe some specific programs in various parts of the country which have been started to meet some of the special needs of the children. One program is at Jerusalem's Israel Museum youth wing, which offers afternoon classes in painting and plastic arts for children and youth. The ceramics class is run by a ceramics artist, Yael Cohen. Two years ago Yael proposed that the youth wing set up a ceramics class for blind and visually handicapped children. Her proposal was accepted and about 10 visually handicapped children have a class once a week. The primary aim is to provide the children with an enjoyable activity and with an opportunity for doing creative work. It gives the children a sense of independence and helps to develop their self-confidence and their sense of touch.

Another program began in November 1980. A group of 14 blind children ages 4-6 years old began to function within the context of the special education program in physical education in the Tel Aviv area. The aim of the program is to develop proper posture as well as adequate movement proficiency. The program includes the basics of dance and gynmastics. Large instruments are used to aid in the development of balance, self-image, and orientation in terms of space and group integration. The program is run by Edna Medalia who will be giving a demonstration later on in the week.

The parents of young blind and partially sighted children, with the encouragement of professionals in the field, have recently organized a Parents Association. They began activities in the Jerusalem, Tel Aviv and Haifa areas, and then began to work on a national scale, founding the National Association ELIYA (the Association for the Advancement of Blind and Partially Sighted Children).

The aims of the Association are as follows:

1) To initiate, promote and coordinate activities for the integration, education and rehabilitation of blind or visually handicapped children and youth.
2) To work for the establishment of rehabilitation centers, club houses, sports and social centers for blind and visually handicapped children and their families.

Although the national association is still in its infancy, the local associations have activated a number of projects for children.

In Jerusalem the parents have initiated an afternoon framework for children learning in an integrated school in the morning. This framework is called the "pupils center" and it is supported by the Jewish Institute for the Blind where many activities take place. The center functions twice a week and 14 visually impaired children from all over Jerusalem ages from 6-11 are brought to the Jewish Institute where they break up into groups for the following activities:

(1) Home economics
(2) Handicrafts
(3) Physical education
(4) Toys and games
(5) Help with their school work
(6) Orientation and mobility and A.D.L. lessons
(7) Reading exercises with closed circuit TV

Another activity organized by the parents in conjunction with the Home Teachers unit was a summer day camp program. Last summer one was held in Tel Aviv and Haifa and there are plans to continue this summer also. Jerusalem too, is planning one with the help of the Jewish Institute, Home Teachers and the staff of the Jerusalem Child Development Center.

Another interesting program which was started last summer and will continue this summer is an educational day camp for blind children and youth to learn to use the optacon. The program was initiated by Dr. Yael Ben Dor of Safed who runs the program at the local community center. The programs goal is to provide intensive optacon training as well as practice in the use of other communication skills.

The Central Library of the Blind in Netanya has 3,000 readers of all ages and provides services which include braille books for children and adults as well as talking books in a variety of languages including English, Arabic, German, etc. These books include the classics, romances, school and university texts as well as exerpts from the daily newspapers in a weekly distributed form. The Library has special editions of religious and Jewish studies and catalogues. The Library also has combined braille and print books especially designed for young children and their parents.

Keren Or Inc., in Jerusalem, is a school for the multi-handicapped visually impaired child. It serves the trainable mentally retarded child and those children with a physical handicap in addition to the visual impairment. It has dormitory facilities for twenty children ages 4 through 18. There is a specialized program to meet the individual needs of each child and the school also provides counselling for parents.

This has been a quick survey of the services in Israel for visually impaired children. We hope, during the symposium, to have for you a booklet describing in detail many of the services I have mentioned.

Some of the services will also be presented in detail later on this week, such as the low vision clinic for children and the physical education demonstration. My colleague Mrs. Chana Kadmon will be describing the educational programs for visually impaired children within the school system in a separate paper Friday morning. I would like to close by thanking you for coming and sharing with us your ideas for programs to serve our visually handicapped children.

PRESCHOOL PROGRAMS FOR VISUALLY HANDICAPPED CHILDREN IN THE U.S.A.

Susan Jay Spungin
(U.S.A.)

Historical Context

The first early educational programs for blind children, developed in the late 1800's were predominately residential (Koestler, 1976 and Lowenfeld, 1973, 1975). This was based on the assumption that the parents of such handicapped children were both overprotective and ignorant of the techniques for sensory intervention. Thus, these parents were seen as obstacles to the educational and physical development of their children. However, by the twentieth century, researchers soon began to note that the children enrolled in these residential programs tended to exhibit ego distrubances caused by emotional deprivation and isolation. Thus, the importance of family life and positive parenting practices became increasingly evident. This growing awareness on the part of education specialists led to the development, in the 1930's of day nursery school programs which encouraged parent involvement. (Koestler, 1976)

In the 1940's retrolental fibroplasia (RLF) reached epidemic proportions. RLF was a condition caused by the overuse of oxygen in incubators; it resulted in blindness. The RLF epidemic created an overwhelming need for preschool services, and many parents turned to social agencies for help. The services provided, however, consisted mainly of psychological counseling, and did not include educational/motor development training techniques. As the RLF epidemic subsided, these special services were phased out; by the end of the 1950's most had been eliminated. This left the victims of the 1963-1965 rubella (German measles) epidemic with limited access to special services and guidance.

Two major legislative breakthroughs occurred in 1965. The first was the Elementary and Secondary Education Act (ESEA--P.L. 89-10), which established federal aid to education. The second was P.L. 89-313, which amended Title I of ESEA to establish grants to state agencies responsible for providing free public education for handicapped children.

In 1966, Title VI was added to ESEA with the enactment of P.L. 89-750, which established broad federal aid for "education of the handicapped". Title VI became The Education of the Handicapped Act (P.L. 91-230) in 1971. Part C of the Act authorized "grants for regional resource centers, centers for deaf-blind children, experimental preschool and early education programs, and any research, innovation, training and dissemination activities in connection with these centers". Congress made subsequent amendments to the Education of the Handicapped Act with the Education Amendments of 1972 (P.L. 92-318) and 1974 (P.L. 93-380), each of which provided for a massive increase in funding authorization levels for the basic state grant program (originally mandated in Title VI-B of ESEA).

By 1973, the number of federally supported programs for early childhood education was reported by the National Advisory Committee on Handicapped Children to have increased to the point that "an estimated 100,000 handicapped children received some early education this year". The 1973 report compares this total to the "handful of early experimental programs as late as 1965, which served less than 10,000 preschool handicapped children".

The 1975 Education of All Handicapped Children Act (P.L. 94-142), building on and amending the foregoing laws, expresses the federal government's permanent commitment to providing education for America's handicapped children. The Act stipulates that, effective September 1, 1978, every handicapped child between the ages of 3 and 21 years is guaranteed an individualized education program designed to achieve that child's maximum learning potential, in the least restrictive environment. However, the Act's mandate for identification and screening programs for the preschool group (ages 3-5), as well as for those between the ages of 18 and 21 will take effect only if such programs are not "inconsistent with State law of practice, or the order of any court, respecting public education within such age groups in the State". Unfortunately, many states do not support screening programs for handicapped preschool children.

Despite these overall advances in federal policy, most parents and guardians of visually handicapped preschool children need more help. In too many cases, such children are isolated from their peers. Nursery schools and kindergartens tend to exclude the visually handicapped child; these institutions require extensive consultation to familiarize them with the special needs of blind children. Residential programs often lack the professional personnel necessary to work directly with parents of these children and provide resource information.

Current Context

Research in early childhood development has shown that the preschool years are the most important learning years. Every child is affected by experiences which help determine his/her physical, emotional, social, and intellectual development. The visually handicapped child has the same basic needs and feelings as other children; however, factors which relate to the visual impairment and hinder a child's opportunities to "experience", produce lags in these developmental areas. (Halliday, 1971)

The blind child does not automatically compensate for lack of vision by overdeveloping other senses, but rather must be taught systematically to use them (Cutsforth, 1951). Furthermore, the visually handicapped population is extremely heterogeneous and the characteristics of blind children are accordingly varied. Therefore, preschool programs of instruction and sensory stimulation must be individualized to meet the needs of each blind child. Parental involvement in early intervention programs is now also recognized as an essential prerequisite for success.

Moreover, most families are unfamiliar with blindness, particularly when it appears in young children. Parents are generally overwhelmed by the special needs of their blind child. They usually question their own knowledge and ability to care for the child, and anxiously seek assistance. Recognizing this feeling of bewilderment and inadequacy which is natural to such families, many states have developed resources to aid parents of blind children during the preschool period of their development.

Another fact, well established by this time, is that the growth and development of the blind child closely follows that of the child with sight, allowing for individual differences. Thus, couseling service for families of blind children is most beneficial when based upon the principles known to foster any child's normal growth, development, and general welfare.

To summarize, services to the family of a blind child should be guided by an awareness of parental anxiety and should be offered as soon as possible after blindness has been diagnosed in the child. Moreover, to be most effective, these programs should be staffed by personnel trained in early childhood development. Many of the so-called "problems" which a blind child may present are not necessarily caused by the loss of sight, as parents believe, but are similar to those encountered by any parent of a young child in a given set of circumstances. The following advocacy statement (Exhibit X,1) outlines the basic concepts underlying the current approach to preschool education for the visually handicapped and is the basis on which all activities in the area of preschool are developed and sponsored by the American Foundation for the Blind.

Exhibit X, 1

STATEMENT OF ADVOCACY FOR PRESCHOOL BLIND CHILDREN*

We advocate the principle of mainstreaming and/or "the least restrictive alternative" provided that it gives full consideration to the unique needs that a visual handicap imposes on the child, the family, and the educator.

We believe:

1. The most influential factor in the child's growth and development is the family.
2. All services and programs for the child must be designed to give support, confidence, and comfort to an optimal parent-child relationship.
3. All services and assistance must be frequent and ongoing, taking into account the family values, needs, and preferences.
4. Comprehensive services should be made available to visually handicapped children and their families as soon as the visual impairment is recognized and/or diagnosed.
5. All these services and programs should be individualized and designed to meet the global needs of the child.
6. The major focus of activities for the preschool handicapped child should be "life learnings" in order to enhance his cognitive, social, and emotional development.
7. The visually handicapped child must be assured the services of specialists, appropriately trained in the education of visually handicapped children, and in the processes of evaluation, planning and placement.
8. The medical community should be included as a partner in comprehensive services for the visually handicapped child.
9. Institutions and programs for the training of teachers of the visually handicapped should recognize early child development and preschool services as a part of their training programs for professional personnel.

We recognize the increase of visually handicapped children with additional impairments and advocate that the same principles apply to this unique group within the visually handicapped population.

*This advocacy statement was prepared by participants of the III International Seminar for Preschool Blind, May 9-11, 1977 Lansing, Michigan, sponsored by Project Outreach for the Infant Program for Visually Impaired.

National Survey

In response to the rapid growth of preschool services for the visually handicapped, Linda Felix and Susan Jay Spungin, Ed.D. initiated a nationwide survey of these programs in March 1977. They hoped to obtain information which would be useful to states in the process of developing new programs or restructuring old ones. In addition, they wished to compile an up-to-date listing of programs and parent groups throughout the United States, to be used as a resource for professionals working with blind children.

To accomplish these objectives, the survey was accomplished by means of a questionnaire eliciting demographic data on preschool programs serving visually handicapped children. The questionnaire requested detailed information in the following areas: program objectives, staffing, selection criteria, referrals, assessment, program planning, parent involvement, and record keeping. For the purposes of this study, preschool children were defined as those youngsters between the ages of 0 and 8.

Current Trends

Based on the survey results, as well as the AFB's extensive experience in the area of preschool education for the visually handicapped, several trends, both positive and negative in the U.S.A. can be identified. The primary positive trends are the following:

- The number of preschool programs for blind children is increasing as a result of increased federal funds and similar incentives.
- The programs which are being established are designed to meet the needs of the individuals served, and vary accordingly.
- Residential schools are concentrating on serving the severely (multiply) impaired population of preschool children.

- Acceptance of the blind into regular nursery schools is becoming a more common practice.
- Communication and cooperation among organizations and interested persons in the community are increasing, facilitating referrals for additional services.
- Family involvement and positive parental attitudes are being stressed by agencies and professionals.
- Outreach programs are increasing, in an effort to make services available to those in need of them.
- Individualized educational programs are on the increase.
- The importance of disseminating information on services available in the community is being recognized.

Despite these promising trends, visually handicapped preschool children are frequently overlooked in the development of comprehensive special education services. Specifically, we note the following negative trends:

- Rural sections of our country tend to be neglected in terms of special services for preschool children.
- Formal psychoeducational assessments are not usually provided for the visually handicapped child.
- Despite progress made toward upgrading those professions which deal with the visually handicapped, many specialists who work with preschool blind children and their parents lack expertise in early childhood development and in special education.
- Parents of visually handicapped preschool children tend to feel isolated and/or overwhelmed as a result of their children's special needs.

Implications for Visually Handicapped Preschool Children and Their Parents

This imperfect social delivery system has staggering implications for every isolated handicapped preschool child. It is in the preschool years that children must learn to meet many of the demands of our society, including communicating, dressing, feeding, and assimilating the numerous concepts upon which all later education is based. Because so much of this learning is normally achieved by means of visual imitation, blindness poses a severe problem for preschool children and their parents.

Ideally, the parent of a visually handicapped preschool child should be visited as often as necessary by a special educator of the visually handicapped with a background in early childhood development. Given the cost of reaching the geographically dispersed population of visually handicapped children and the inconsistent qualification and requirements for entry into the preschool counseling profession, this ideal has in no way been achieved. As a result, parents of visually handicapped preschool children often find that they are unable to obtain basic information about their children's needs. Either the professionals are unavailable or they are not suitably trained to work with these parents and their children.

Activities of the American Foundation for the Blind in the Area of Early Child Development

1. Up until 1974 Ms. Pauline Moor, Specialist in Preschool for the Visually Handicapped was hired full time by the American Foundation for the Blind. Since her retirement, Dr. Spungin has assumed her responsibilities in this area.
2. 1977 the American Foundation for the Blind sponsored a National Preschool meeting in Minneapolis with over 600 in attendance.
3. 1978-79 the American Foundation for the Blind ran 3 regional meetings modeled after the National in Virginia, Texas and California.
4. Several grants have been written and outside funding is still being sought for various projects such as: A Home Training Correspondence Course for Parents of Young Visually Handicapped Preschool Children (0-5); Regional Parent Training Programs.

5. The American Foundation for the Blind has helped to start a new national parents organization and continues to work with them running regional training workshops for parents and publishing a newsletter, Awareness.

Of all the American Foundation for the Blind's activities listed in the area of preschool perhaps the most exciting is the establishment of the National Association of Parents of the Visually Impaired. For it is indeed the parents that must serve as advocates and teachers for their children. A recent slide presentation, "A Little Bit More Than Love" best describes some of the preschool programs and the important involvement of parents as well as serving as an informational piece for the National Association of Parents of the Visually Impaired. I encourage you to see it and learn more about model preschool programs for the visually handicapped and the important role of parents. For without parental help and support no program in any country using any service delivery model will truly meet the needs of our preschool visually handicapped children.

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OCEANIA REPORT

Jan Stanford
(Australia)

Pat Jarrett
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Australia

In nearly every State of Australia, there is now a programme for visually handicapped preschool children. However, because of the vast geographical difficulties, many children in rural areas are not served by these programmes. Some may be picked up by other health services and other programmes for developmentally delayed children, but there are many who do not receive sufficient help.

The Early Intervention Programmes for Visually Handicapped Children vary in their delivery of services. The majority of these programmes are Home Based Programmes, with some both Centre and Home Based. Most partially sighted children are integrated into regular pre-schools, and, in some States, many blind children are also integrated. However, the degree of back-up service to these children varies from State to State, as does the help given to Teachers in these Pre-schools. Some Programmes also provide special Pre-schools, play groups and residential care.

It is not possible in this report to examine each of the Programmes in Australia or the quality of service they provide. One example, however, of Early Intervention Service in Australia is the Royal Victorian Institute for the Blind, which provides all the above services, serving 210 children throughout Victoria. This figure just exceeds the anticipated rate of visual handicapped in Victoria, leading to a belief that almost all children eligible for a service are receiving one. The service has a staff of:

5 Home Advisors
10 Pre-school Teachers (including visiting Teachers)
1 Physiotherapist (9 hours per week)
1 Speech Therapist (4 hours per week)
1 Occupational Therapist (4 hours per week)
1 Trained Sister
24 Child Care Workers
Consultant Psychologists

One area that I feel needs important attention in our Country is the training of those people working in Early Intervention Programmes. Many come from a variety of disciplines and, in the rush to supply a service, little is done to give thorough training to this relatively new upsurge in Intervention Programmes throughout the country.

A recent survey by the Schonell Institute in Queensland found that there were 133 Early Intervention Programmes for Handicapped Children in Australia, serving 5,187 children. However, the expected incidence of children requiring early intervention could be up to at least five times that number, or even more.

Health Benefits

Severely handicapped children are eligible for Handicapped Child's Allowance, which is currently $73.00 per month. Each case is individually assessed by the Department of Health. Isolated Children's Allowance is up to $1,720.00 per annum, depending upon parents' income. The basic allowance paid to all parents is $780.00; the rest is means tested.

Prevalence and Incidence

There are no accurate figures yet in Australia as to the number of pre-school age children with a visual handicap, as it is not a notifiable disorder. However, an estimate based on the number of children served by Programmes indicates an incidence of 0.05% to 0.07%.

Main Causes of Visual Handicaps

A survey of the causes of visual handicaps in children who are being served by Early Intervention Programmes in Australia shows that the main causes are Congenital Cataracts, Optic Atrophy, and Retrolental Fibroplasia. Trachoma is responsible for most of the visual handicaps in rural Australia.

Major Advances in Care, Treatment, and Education

In 1980 the findings of the National Trachoma and Eye Health Programme were published by the Royal Australian College of Opthalmologists, Sydney. This two million dollar programme was established with a three-fold purpose:

1. The presentation to interested agencies of the state of ocular health of people living in rural Australia.
2. The provision of immediate eye care to these people.
3. In the light of the experience gained in the above, consideration of the establishment of ongoing eye care programmes, and the training of medical, paramedical and interested lay persons, in the skills necessary to provide eye care in rural Australia. In all, more than 100,000 people were seen, more than 60,000 of whom were Aborigines.

Prevalence of Trachoma

29% of pre-school Aboriginal children examined by the Programme had Follicular Trachoma, with pre-school children having 38.5% of all cases of Follicular Trachoma found.

The National Trachoma and Eye Health Programme has received the strong support of the World Health Organisation, and the programme has had its experience drawn upon in the preparation of a major publication by the International Agency of the Prevention of Blindness on the organisation of National programmes to combat eye disease. However, the implementation of the Programme in our Country has been severely hampered by funding problems and questions as to whom should be responsible, Federal or State Governments.

Recently, on May 22nd, 1981, Professor Fred Hollows, Director of the National Trachoma Programme, and the Assistant Director, Mr. Gordon Briscoe, resigned from the Programme because of the Federal Government's decisions on Aboriginal Health Funding. Professor Hollows stated that the Programme was being handed back as the responsibility of the States, who did not have a good record in this area. Professor Hollows also said that the State Health Programmes were "racist, ineffective, and wasteful".

On May 26th, 1981, the Federal Minister of Health, Mr. MacKellar, said, "The Government supports the recommendations from the report for the continuation of the work commenced by the trachoma programme and recognises that, without follow-up through both therapeutic and preventive intervention, much of the effort to date may be lost. We are, therefore, taking steps to ensure that the improvements in Aboriginal eye health achieved by the trachoma programme are consolidated by means of effective follow-up and regular reporting." Mr. MacKellar went on to say, "The Government will investigate the need for additional funds for national programmes, which will have a special focus on prevalent illnesses. We wish to have the advice of Aboriginal people and of the States in determining the needs, appropriate programmes, and priorities."

Other Advances

There has been a growing awareness on behalf of the medical profession on the need for liaison with Educationalists. In Victoria, it has been decided to produce a guide to services available, initially for that State, but later for Australia-wide use. The aim is to have it useable by everyone from Opthalmologists to parents.

In New South Wales, inservice courses for teachers and parents have been initiated. There is ongoing research into causes of R.L.F. Also there is improved diagnosis with the use of electrophysiological assessment of vision.

A research programme has begun in conjunction with Macquaris University into education of low functioning deaf-blind children, and a new centre for Multiply Handicapped Children, with buildings catering for all types of handicaps, physical or sensory, with full medical facilities available.

In Queensland there is a free Host Parenting Scheme for children from isolated areas, with free return air fare and accomodation for country parents.

A network of communication was established in New Zealand and Australia at a Seminar on Early Intervention for Visually Handicapped Children, held in April, 1980, at the Royal Victorian Institute for the Blind.

It is hoped that as information on research and development comes to hand, it will be distributed to each member in each State, who will, in turn, distribute it to those concerned.

In September, 1981, Queensland's School for the Blind, Narbethong, will hold a two-day Seminar on Early Intervention for Visually Handicapped Children, and it is hoped that this will continue each year.

Papua New Guinea

There are no services in Papua New Guinea for the blind in any age group. Indirectly, through health services, something is being done by improving hygiene instruction, through agencies like the Aid Post Orderlies, in cleanliness and improving nutrition, particularly where Vitamin A is lacking. With help from other sources such as visiting Opthalmologists, something may be done for the many curably blind in this country.

I recommend a report on the Educational Needs and Services for the Blind of Papua New Guines, prepared for the St. John Association for the Blind in Boroko, New Guinea, by Brother John Adams.

Main Causes of Visual Handicaps

The causes of blindness are varied. In an article by Dr. G.A. Parsons, Opthalmologist attached to Madang General Hospital, he states that there is a predominance of superficial infection and trauma as the major cause of blindness. In replies to his survey, there were cases of Trachoma, Cataract Glaucoma, Retinal Dystrophy and detachments, Retinitis Pigmentosa, and Congenital Nystagmus. Some have resulted from premature births and Rubella. Other causes, apart from accidents, were Methanol poisoning and Meningitis. In some cases 'magic' was stated as the cause. . . of five cases in one village, four were attributed to 'magic'.

Many of these cases are able to be treated. However, the cost of treatment is beyond the resources of the average family.

With the dust that abounds in many parts of the country, Conjunctivitus is prevalent. In the same way, flies act as a spreading agent for Conjunctivitus and Trachoma.

Malnutrition appears to be less of a cause now, although babies and small children are still seen with a Vitamin A deficiency.

Prevalence and Incidence

A pilot survey is presently being conducted by the National Board for the Disabled, under the direction of Dr. Anthony Griew. Figures are not yet available, but it would appear that a figure comparable to Dr. Parsons' estimate could result. This was a figure of 12,500 blind people in Papua New Guinea from a population of three million. In 1978 there was an estimation that there were 4,000 blind children in Papua New Guinea, but no one was able to indicate how this figure was arrived at.

Both Dr. Dethlefs and Dr. Parsons estimate that with most of these people blindness is curable. . . the figure being put as high as two-thirds.

Major Advances in Care, Treatment, and Education

There does not appear to be anything significant in this area. It is to be hoped, however, that some of the recommendations set out by Brother Adams in his report will be implemented in the near future.

Solomon Islands

There is no programme for the Visually Handicapped in the Solomon Islands. The Red Cross has established a small centre for handicapped children in Honiara.

Recently Sister Margaret Short, formerly from St. Lucy's School, and other staff members visited some families in the Solomon Islands to offer advice and assistance. This led to a five-year-old blind child and his father spending six weeks at St. Lucy's School undergoing instruction. This project was undertaken and all expenses paid for by private donations.

There are no figures available as to causes or incidence of blindness in the Solomon Islands.

Tonga

The Red Cross serve all handicapped children.

There are no special services for visually handicapped children.

Fiji

Visually handicapped children in Fiji are served by the Fiji Society For The Blind, which runs a school for Blind Children and provides accomodation for those coming from outside Suva. The Early Intervention programme is just in the planning stages.

Health Benefits

Visits to the eye clinic and other health attention visits are free.

Main Causes

1/ Albinos 2/ Congenital cataracts 3/ Adventitiously blind 4/ Retinitis pigmentosa.

A Rubella epidemic in the early 1970's has resulted in the occurrence of many cases of congenital cataracts. Unfortunately, no figures are available as to the number of pre-school age visually handicapped children.

Major Advances

Children at the age of 3½ years are just beginning to be accepted at the school. There is at present a class of 6 Pre-school children amongst whom is a deaf-blind boy. There is no fully trained pre-school teacher at the school. During the last school holidays, some home visits were made, and it is hoped that, in the future, more such visits will be possible.

New Zealand

There are approximately 160 children aged 0-8 registered with the Royal New Zealand Foundation for the Blind throughout New Zealand. More than half of these children live in the upper half of the North Island. There are two categories of registration: full registration and for educational purposes only. Registration is not compulsory in this country.

Children are visited in their homes by the R.N.Z.F.B. Social Worker in their region. A Pre-School Services Officer visits homes, pre-schools, and agencies associated with the child, throughout New Zealand. Because of geographical difficulties, some children are seen only once a year.

Most partially-sighted children are integrated into normal pre-schools. Totally blind children either attend special units in normal kindergarten (one teacher to five handicapped children) or pre-schools operated by other agencies, e.g., Crippled Children's Society and the New Zealand Society for Intellectually Handicapped. Multihandicapped children also attend these pre-schools.

Auckland is the only centre where numbers are sufficient to have a pre-school for visually handicapped children. This serves some multihandicapped blind children up to five mornings a week. Monday to Friday residential care is provided for some of these children. A playgroup for visually handicapped children too young to attend normal pre-schools operates once a week with mothers attending with their children. Transport is provided for those who need it. The Auckland Centre is at

Homai College and is operated by the Royal New Zealand Foundation for the Blind.

Health Benefits

Social Service - Handicapped Allowance, etc.

In addition to the $6 per week payable to all children, visually handicapped children may be entitled to $8 per week Handicapped Child Allowance. There is no payment or sibsidy for glasses, except in cases of extreme hardship. Certain allowances are available under the Disabled Persons Act to cover the cost of travel and accommodation for medical and education assessment. Suspensory loans are available for some home alterations. Parents are entitled to 28 days paid alternative care a year.

The Main Causes of Visual Handicap

1. Congenital (no known hereditary condition) - most common are optic atrophy and cataracts.
2. Hereditary - most common are albinism and cataracts.
3. Oxygen therapy - retrolental fibroplasia.

The Prevalence and Incidence of Visual Handicaps

A survey is being conducted at the present time and final results are not yet available. Present indications are that 1-200 children in the 0-8 age group would have a severe visual handicap. Registrations with R.N.Z.F.B. indicate a greater prevalence in the Auckland area. Possible reason for this is that R.N.Z.F.B. Head Office and Homai College are in the Auckland area and there is better referral. There is a larger Polynesian population in the Auckland area.

The Major Advances in Care, Treatment, and Education

Integration of more children with low vision into normal pre-schools and primary schools (children commence at 5 years of age in New Zealand). The R.N.Z.F.B. and Department of Education have jointly developed education services with itinerant teachers visiting schools and Resource Centres being set up in Wellington, Christchurch and Dunedin. Multihandicapped children may be registered with a number of agencies, e.g., Crippled Children's Society, New Zealand Society for Intellectually Handicapped, R.N.Z.F.B., and their involvement will depend on which service can provide the most appropriate support at a particular time. There is an increased awareness of the importance of early intervention for severely visually handicapped and multihandicapped children. The R.N.Z.F.B. is establishing a pre-school service, including early intervention and a developmental centre at Homai College. All children referred to Homai College are entitled to an assessment and negotiations are underway to appoint a consultant paediatrician. A low vision clinic has been established at Homai College. The Deaf-Blind Unit is working with children from age 3 onwards.

At a recent Ophthalmology Conference (part-sponsored by the R.N.Z.F.B.) it was recommended to the Health Department that Hospital Boards establish Low Vision Clinics in their six regions throughout New Zealand.

Addendum - June 2nd, 1981

Professor F. Hollows and his assistant, Mr. G. Briscoe, withdrew their resignation from the National Trachoma and Eye Health Programme after a meeting yesterday with the Prime Minister, Mr. Fraser and the Minister for Aboriginal Affairs, Senator Baume. After the meeting Professor Hollows said that he felt confident that the Federal Government was going to proceed with Aboriginal health according to principles that are sound.

KEYNOTE: "IN THE BEGINNING......THE CHILD"

Wolfgang A. Stein
(West Germany)

Allow me to begin my observations with a little digression before I turn to the actual theme of this conference. I consider this digression necessary because it will make many connections clean and place out specific problems in a larger perspective and in a wider dimension.

We live in great times. Such momentous and revolutionary changes in human life as have characterized the past 30-50 years have never before been experienced in any previous era of humanity. Man has, to speak in biblical terms, subdued the earth, in the truest sense of the word. It almost seems as if there were no more secrets, and the word "impossible" will soon disappear from our vocabulary. Scientists, technologists, and doctors have opened doors which for our ancestors were either taboo or regarded as firmly closed. In half a centruy we have split the first atom, mastered the air, and now we are preparing to conquer space. That which seemed infinitely far away to our fathers has already been brought within an attainable distance, and since the first landing on the moon, a development has begun the outcome of which we cannot even guess. The visions of one Jules Verne already seem as fairy tales to us nowadays; we find it much easier to agree with Jung, who has said, "The future has already begun!" In a simpler way, but still expressing a distinct feeling of elation, a member of a new caste in our society, the "Jet-Set", said recently; "Last night I dined in London, I had breakfast in Bombay, lunch in Singapore, and my next dinner will be served to me in Tokyo. It's great to live in times like these and great to be able to say: "We were there at the time!"

Indeed, we were, we are here at this time! and we are not only eye witnesses and participants of these wonders of technology, we also see ourselves as victims, stripped of our own last secrets. Medicine, psychology, and psychiatry go beyond those limits which for centuries were regarded as inviolable taboos. Since the first heart transplant was successfully performed less than 20 years ago, it seems that the transplant of other human organs is only a matter of time. The conquering of the last deadly diseases, for example cancer, also belong to this development. On the horizon is genetic manipulation which may one day bestow us with conveyor-belt production of brains modelled after Einstein. Our times, our great times! Should we not join in a chorus with the jubilant cry of that jet-setter: "We are here to experience it!" Like gods we have liberated ourselves, elevated ourselves - flown up to the stars. Truly, we are the crown of creation!

Unfortunately this hymn of praise is not a world-wide chorus! The dissonance arises from the fact that only a small proportion of the human population of our planet has a share of these achievements, for it is irrefutable that this development of which we are so proud has by-passed more than two thirds of all human beings. Even more: there are signs and proof that in the last decades of our rapid development, our growing wealth and our improved standard of living, many of these countries which were already poor have become still poorer. So poor, that 70-80% of their people lead an existence unworthy of human beings, below the minimum necessary for survival, the so-called "Poverty Line". For example, in India this means a yearly income of less that 50 US $. In order to demonstrate the large extent to which our world is split into "different worlds", I will compare the following figures: the Gross National Product in India amounts to US$150, in the USA it comes to $5,590, in Bangladesh it is $90, compared to $4,480 in Sweden! Poverty has many faces, and its criteria are varied. Someone has claimed that a person in Europe may be classed as poor if he has no car, in Asia he is poor if he has no bicycle, and in Africa if he cannot afford a pair of shoes. My definition is simpler: for me all those who cannot eat their fill at least once a day are poor! It is of these poor people I am thinking, especially of the many millions of hungry children. I have met them in the slums of large cities in Asia and Latin America, in the refugee areas of East Africa, and in the arid regions of the Sahel in West Africa. They are not yet "handicapped" in the sense of our theme, but there can be no doubt that it is precisely these children who, because of inhuman living conditions, form the large reservior of those whom we call "children at risk". Just how much they are at risk is shown by a publication of the World Health Organisation, according to which in South-East Asia alone 100,000 to 150,000 children go blind yearly from xerophthalmia. And this statement leads me right into our theme: here it is not a questions of old people who lose their sight late in their lives - here we are talking about small children and infants who lose their faculty of sight at a time when their lives have not yet really begun. At the same time we should remember that these blind children represent only one of diverse groups of handicapped persons: together with the deaf, mentally and physically handicapped they form approximately 15% of the child population in developing countries. WHO has said that the two main causes of these handicaps are malnutrition of mothers and children, including lack of vitamins, and infectious diseases. If the goods of this world were more equally distributed, a little more insight were shown on the part of those in positions of responsibility, and there were more solidarity of effort, 80% of these handicaps could probably be prevented. Can we still talk about our "great times" in the face of this? How great - or how small - do we suddenly become faced with such knowledge? A well-known industrialist once said: "Nothing imposes more responsibility than wealth." Have we, the rich and privileged of this world, assumed such responsibility ourselves?

Even if we are not prepared to share the problems of our fellow human beings in an underprivileged part of the world, one would at least assume that we have solved our own. Let us therefore examine our great, affluent and flourishing society somewhat closer. Have the fantastic achievements of technology, science and industry also contributed to raise our human life together, our attitudes toward our neighbours, to a better, higher level? Do all members of our society participate in this progress, do they all really enjoy and benefit from this zenith of human existence? Have we in fact already asked ourselves why we need a "Year of the Child" or a "Year of the Handicapped"? Could it be possible that such proclamations are issued to force us to think of those whom we so often banish from our consciousness? Let me speak clearly: Our rich, prosperous society assumes more and more often an attitude of rejection or at least of ignorance towards all those who form a distrubing element in our prosperous paradise. They neither fit into our image of perfection, nor can they have a place in our competitive system: the ill, the weak, the handicapped, the old, the dying. In this context it is interesting to follow advertisements on the radio or television, for by now we are aware of the power of such advertisements in forming our opinions. In them a society is suggested to us, or at least an ideal picture of this society, which consists of happy, healthy, vital, active and wealthy people whose average age is perhaps 25. The pharmaceutical industry probably represents the only exception, as its advertisements extol the virtues of medicines and miracle cures which promise eternal youth, vitality and health for those among us who are no longer young.

Let us be honest with ourselves: we would like to push them our of our sight, all those who disturb our image of a perfect human society! For that reason they must be forced into isolation from us - the aged and feeble into old people's homes and infirmaries, the dying into sterile hospital rooms, the blind, deaf and physically handicapped into special schools, the mentally retarded into institutions and asylums. We tell ourselves, "That is the State's business and responsibility. The State must take care of them." We forget that we are the State. If the State fails, then we fail too.

We must develop a new conception of our human community so that there is room notonly for those who contribute to its knowledge, progress and wealth, but also warmth and affection for those who are weaker and have less to give. We must all have a sense of responsibility for one another. These basic demands on social conscience cannot be laid down by law. All of us as fathers, mothers, brothers and sisters of the human family must make individual contributions to this development.

Despite the bleak picture I have just presented, there is much existing upon which we can build. There are examples in the world which can encourage and stimulate us, which can show us how to strive for that better human community where each individual can have the right to full membership and participation.

Now we must consider a task which has been given to this conference: to look at the needs of young visually handicapped children. We who are here, you and I, want to give blind and low-visioned children a better start in life and in the society in which they will live. We understand how important it is to begin this process early, as early as possible. We know that during the first years of a normal child's life everything can still be won or lost. This is even more strongly true of the early years of a handicapped child's life. Too long we have held on tightly to the concept that what we call "education" begins at ages 5, 6 or 7. We have been thinking primarily of educating a child to become an "academic begin" rather than a "social being".

Today we know that learning, and education begin at birth, and that parents represent the key figures in the learning process of a small child. Let us not therefore take our own roles too seriously, because by the time children come under our care and responsibility, a decisive part of their development as human beings has already been concluded. We must arrive at a new recognition and evaluation of the important role parents play. Whenever a child comes under our protection, his parents must reamin our most important partners.

But parents often feel helpless and unprepared, which is understandable. We train people to be teachers, psychologists and therapists at our universities. Where do we train people to function as parents? There are no schools teaching parenting. It is, therefore, not the least surprising that parents often find themselves unable to cope with their children's problems, especially if the children are handicapped. An experienced educator says on this subject:

"Many handicapped children are not aware of their problems during the first few years of their lives. It is their parents who suffer most. They are ignorant of the full import of their child's condition, and may be harbouring many misconceptions. Most parents are terribly shocked. Some refuse to accept the diagnosis of the doctor. Blaming themselves or others for their child's condition, some reject the handicapped child totally. A large percentage mix guilt with pity and overprotect the child. For no parent is full acceptance an easy matter."

Nearly all parents need help at some time during the early years of the lives of their handicapped children, and most of them are glad to accept assistance. It is not so vital that we as counsellors and teachers be concerned with using the most scientific methods and techniques when handling the children, but rather that we make every effort to use the best possible ways of helping the parents. Such help may be given in a different form in a developing country from what is offered in a prosperous society. In all cases, the most important thing is the activation of the family's latent strength for sharing and helping one another so that all members may live in harmony and joy with the handicapped child.

On no account should our only answer be the institutionalisation of such children. I am aware that in certain cases where especially severe handicaps are involved, a short- or long-term stay in a special institution cannot be avoided. In spite of this, I declare myself to be a strong opponent of special institutions where they only serve as alternatives or as excuses for the failure of both family and society. This is equally true for handicapped children at pre-school or school age.

For a long time now we have known about the so-called "hospitalism syndrome", that is, the deficiencies children living in institutions show in almost all areas of their personal development. Nevertheless, the tendency still exists to isolate handicapped children in institutions. I would like to quote from Professor Hellbrugge, a teaching pediatrician, who has created in my country a model integrated programme for handicapped and non-handicapped children:

"Only if we promote the social development of a child, no matter in what way he is handicapped, at the earliest possible stage, and give him the opportunity at pre-school and school age to know the world of non-handicapped people. . . Only if we give the non-handicapped child an opportunity early in his life to know and accept the handicapped child in the context of his social development will we be able to really solve the problem of handicapped persons in our society."

Such integration is possible in our prosperous societies and in developing countries - indeed, in the latter it is not only possible but imperative. How else could the great mass of handicapped children in Third World countries ever have a chance of education? In India, to mention only one example, there are over 130 residential schools for the blind, yet we know that these schools can offer service to only one child out of thirty in that country. If only for financial reasons, we must ask how many special schools must still be built to guarantee all blind children the right to education.

But I am not so concerned with the financial side of the problem. My main concern, our main concern, must be to help build a social structure in which handicapped and non-handicapped persons can live together. Prosperity and health must not be allowed to obscure the fact that God has created this world for all of us, a world in which every individual must have his place.

One of our philosophers said that handicapped people need society, but society needs its handicapped members also. Any society's ethical, moral and spiritual value can be measured according to whether it not only tolerates its handicapped members, but fully accepts them.

If our riches should one day all be taken away from us, the sense of community, of solidarity, the feeling of responsibility for our neighbour would survive and become a guideline and compass for future generations.

Thus the duty of all educators is not merely to fulfill professional obligations, but to challenge themselves, and others, to build a new and better society.

Over and beyond all professional deliberations let us respond to, and accept, this challenge at this conference, too.

FAMILY GUIDANCE AND ITS IMPLICATIONS

Willem Tas
(Netherlands)

The institute "De Wijnberg" in Grave (Netherlands), where I work, is an institute for normal and hard learning children with visual impairments. This institute started twenty years ago with through the efforts of parents of a seriously visually handicapped child and other educators in the home-situation, to help them in the up-bringing of that child. This service aimed to preserve for this child family-education as long as possible and to prevent or reduce developmental retardations.

In order for admission to the institute to be considered, a child should have fundamental skills in its social-emotional, psycho-motor, and intellectual behaviour. At its own individual level it should be able to do the activities of daily life and to meet the requirements of school-maturity.

To this end we developed curricula analagous to the Experimental Curriculum for Young Mentally Retarded Chidlren of Frances P. Connor and Mable E. Talbot (Teachers College Press, Columbia University, New York) and the 'Anregungen fur die Forderung Sehgeschadigte Kinder im Fruh- und Elementarbereich' age range 0-6 years, published in 1976. This curriculum was set up by the 'arbeitskreis der Arbeidsgemeinschaf Fruherziehung' in Hannover, a workshop concerned with precare in West Germany.

Although these curricula are still meaningful for our work, several factors contributed to the fact that they were pushed into the background.

In the initial period of our approach the age of admission of the children was about two-and-a-half years. At this age one could say that it is possible to work with training-programs, but very soon it appeared that the usefulness of these programs depended on the relationship of parent and child. Distinguishing, accepting, and assimilating problems concerning the handicap of the child interfered in the application of the curricula. Soon it became clear that supporting and promoting the attachment between parent and child was a matter of priority, especially when the age of admission decreased more and more.

Now it is no longer necessary that we contact parents with a blind or weak-sighted baby when the child is half-a-year old. Ophthalmologists and especially ophthalmological university clinics begin to find the way to our ambulant institutes for visually handicapped children in the Netherlands.

Guidance, when the child is still in the cradle, is a great benefit, but one is confronted with the problem of the parents: how to be an educator of a handicapped child. This is not a matter of course. Many people are concerned with the child. Parents are dependent on the decisions of specialists. They feel no longer sure in the bringing up of their child. This insecurity is existential. They are frustrated in giving sense to every day life, their life-design, their future. They have to distinguish and assimilate the other way of existence of their child. They must once more discover the way to a meaningful life both for the child and for themselves. They have to become parents again. The child, sometimes so hard to understand in its behaviour, which is objectivated by all that has happened in its short life, has to become a child that belongs to parents, that needs their attachment.

When we try to create an optimal pedagogical situation, we have to bear in mind the above mentioned aspects. We work as equivalent partners in close conjunction with the parents. Modesty in expertness, sincerity, willingness to listen and involvement in joint care for the child are the marks of our approach.

The parental responsibility is taken very seriously. No dictatorship or blackmail in their counseling, no consultation of others either written or orally without their permission. All we know about the child is known by and available for the parents. This method is not easy, but gives the parents security in managing their problems and respects them in their parental expertness. It makes them less dependent of others and it creates the condition of a more natural way of living with their child, in which the child is less exceptional, but more an integrated member of the family. And that is another reason, why we introduce developmental curricula with the greatest care.

I started my sketch of our basic attitude in guidance with referring to several aspects in relation to the parents. I have said, that we try to condition an optimal pedagogical situation. This implies, that other questions in the family have our attention too. Their pedagogical relevance has to be assessed, just like the pedagogical expansibility of the family. This can mean, that the high-blood-pressure of the father, the restlessness of another child and the love of a meddlesome grandmama may need our attention too. This means, that guidance covers more than just dealing with the visual handicap of the child.

But how do we elaborate our attitude in relation with the child in question?

For a child, it is vital that it belongs to parents. Mostly this means for the very young child in our situation, restoring, supporting or affirmation of the intimate tactil-kinestetic way of encounter between mother and child. The meaning of this - and now I use a German word - 'Beruhrungsraum' is not only important to constitute attachment-behaviour, but also for self-affirmation of the child and its stereo-gnostic experience.

In careful touching of its hands and its mouth - the genetic primary space of the child - the parents possess, for example, possibilities to bridge the communication gap, caused by total or partial lack of visual contact. Selma Fraiberg already pointed out the self-expressive meaning of the hand movements of a blind baby. She thought it possible to develop with the child a kind of hand-language, as a substitute for eye-contact.

In accordance with the discoveries of Colwyn Trevarthen of the University of Edinburg, Scotland, who researched the interaction between the mother and her three months old baby, we advise the parents to echo all the self-initiating movements and expressions of the child, which is namely the matter according to Colwyn Trevarthen.

In contradistinction to what is supposed, the expressive behaviour of the child is not unformed. Two or three months old children are capable of a very complex and differentiated mutual understanding, which they make clear in movements and face-expressions. And this is perhaps the most fascinating aspect in the findings of Trevarthen, it is not the mother, who gives direction to or has the leadership in this contact and the interchange of expressions, but the child itself. When mother, in her contact with the child, mirrors, imitates the expressive behaviour of the child - in the research of Trevarthen, the mimic expressions - the child appeared to be encouraged in its expressive behaviour. It is building up its social code, its own manner of communication with his mother, which possessed in this relationship a kind of predictability.

These discoveries of Trevarthen we introduced in our contacts with the parents and put into practice in contacts with blind toddlers, who are socially very retarded. Mirroring ALL the initiatives of the child, not only their vocalisations, but also as much as possible all their intended movements, appeared not only to consolidate our contact with the child, but also to differentiate its behaviour. The actions of the child became more self-conscious, its movements more purposeful and social embedded, probably as a consequence of our child-affirmating-reactions. The child gave us the impression, that it is better understood in its behaviour by the growing gladness, which accompanied its actions. However you must always be aware of a good timing and tuning of your reactions, not to pass or overcross the intentions or level of expression of the child. Very soon you may go too fast or expect too much of the child. You have to give the child its own time to build up its code of communication through which we are recognizable and reliable.

The results of this work-method - a word that I dislike in this context - are hopeful for the social functioning of the blind babies and toddlers. That's why we encourage parents to integrate this way of interaction in parent-child play, especially when parents have difficulties in understanding their child.

Just like you, we believe in mother-child play. The body of the mother is of great value for the child, who as a toy can't compete in quality of softness, warmth and rounding with the most lovely cuddle toy. Body-to-body contact is much more complex. Not only, for instance, do breast and hand form an unity in giving and receiving in their combined tactile action, this self-supporting contact is also contained in an enclosing security, in which supported by the protecting voice of the mother, feelings of tenderness awake. In this companionship the mother looks for and challenges the identity of the child, she constitutes the conditions for a sensitive and experienceful encounter of the child with his world by offering herself to the child as a 'bonum conveniens', a benefit, to which it is entitled.

Within the security offered to the child in body-to-body contact, the child is invited to explore the body of the mother, take her nose, play hide and seek at the cavity of her arm or neck, pick the holes of her ears and nose, pull her hair and playing discovers the hill, which makes the trunk or leg.

This exploration meets less resistance than those of dead things in the play-pen. Place and objects are united in one body, which speaks of itself and which interrelates them through the skin, which forms an inviting way to go with its hand from spot to spot by its tactile qualities.

A first exploration of space takes place. The discovery of mother, as the child's first object, is given a first impulse and with it the conditions for attachment and the development of object and space-conception as well as body-consciousness.

Although we don't want to speak of a next stage, when parents and child have found each other in this body-to-body contact, body-things can be introduced in this interplay. With body-things I mean all the things we wear, clothes, spectacles, bracelets, watches, rings, all the things we have in our pockets, matches, pencils a.s.o., in short all the things with which we play with children in close bodily contact and which are attractive to children. They are the things through which we are identifiable for the child. With these things we gradually introduce the child into the world of things, which are part of our life, which have a meaning for us, which speak of us, in which and with which we live and through which we are united with each other. To discover these 'life-things', we have taken the child out of the play-pen and put it in our living-room. With this gesture we are saying that the child is worthy and sometimes able enough to share our living-room, our life-space.

This period in the development of the child is very critical. For the parents now the issue at stake is to succeed in sharing their lives with the child, not to put it aside with a toy-box, but draw its attention to everyday life, not keep it out of the kitchen to be free to prepare the meals, because this is easier, but put the child next to you, when you peel the potatoes. What we have to do is trying to develop the child parallel with us in all our daily activities. Performing parallel with us the child can, better than with any other developmental material, discover the intrinsic logic and essence of the things with which it is dealing. So the child does count in the whole family-life. That is motivating, that makes him move.

In the guidance we don't devote our energy to look for good toys or suitable developmental material.

Developmental material pretends to have function-developing value. It would be good for eye-hand coordination, for cooperation of the two hands, to discover and learn different forms, significant for language-development, for training sight and hearing, contributing constructive insight, important for experience of balance. This is a selection of the recommendations, with which developmental material is put on the market and gets its scientific label. We must be aware, that developmental material is derived from 'normal' life activities. It is justified to ask that with using developmental material, we don't estrange the child sometimes needlessly from our way of life, from our life-world in the expectation, that the child will get ready in the world, we have created for it by childrooms, kindergarten and creches. The child, especially a child with a handicap, becomes a man in partnership of our world. The world of the child may be a supplement to it; it may not substitute the partnership of our world.

As the musician in the band enjoys the drumming child that walks along with him, so parents and child will share in and affirmate each others lives.

When time permits me, I would like to say something about weak-sighted children, mostly neglected, when we speak about visually handicapped children. Several questions occupy my mind.

We all know, that weak-sightedness is hard to determine in terms of seeing and in its influence on the self-concept of the child. But why are we usually confronted with the consequences of that handicap, when the child is about four years old?

The child becomes a toddler and we expect of the child, that it is going into the world. But just in the age-range 4 till 6 so much happens in the life of a child, that we are speaking of the first puberty. Its body is changing just as its relation with and apperception of the world around it. The child becomes more interested in the things themselves. They are appreciated in a more essential and substantial way. Things get names and are understood in connection with other things. The interest of the child in itself is growing and the relation to itself is changing. It begins to see itself as a part of the world, to which we all belong. It begins to form a picture of its bodily ego, it is interested in its own body and limbs, it shapes for itself a picture, how it behaves in different situations, what it is able to do in physical and mental respects, it has interests in its history, what it was like, when it was a baby, what and who it is now, of what it would like to be in future. The concept the child has of itself, however, is very sensitive and determined by what others are saying about it and what happens to it here and now.

The 5-year-old child is living in a period of transition. But how does his visual handicap interfere in this period of its life? I have many questions about this matter. I hope that this congress will give me the opportunity to discuss these questions, for the weak-sighted child needs our care, too!

QUESTIONS ABOUT THE INFLUENCE OF WEAK-SIGHTEDNESS ON THE DEVELOPMENT OF A CHILD

Introduction:

We all know that weak-sightedness is hard to determine in terms of seeing and in its influence on the self-concept of the child. Usually we are confronted with the consequences of that handicap, when the child is about four years old. Then the child becomes a toddler and we expect of the child, that it is going into the world. But just in the age-range of 4 to 6 so much happens in the life of a child that we are speaking of the first puberty. Its body is changing just as its relation with and the perception of the world around it. The child becomes more interested in the things themselves. They are appreciated in a more essential and substantial way. Things get names and are understood in connection with other things. The interest of the child in itself is growing and the relation with itself is changing. It begins to see itself as a part of the world to which we all belong. It begins to form a picture of its bodily ego, it is interested in its own body and limbs, it shapes for itself a picture how it behaves in different situations, what it is able to do in physical and mental respects, it has interests in its history, what it was like, when it was a baby, what and who it is now, of what it would like to be in the future.

The concept this child has of itself however, is very sensitive and determined by what others say about it and what happens to it here and now.

The 5-year-old child lives in a period of transition. But how does its visual handicap interfere in this period of its life.

A blind child too will go through the transition from toddler to school-child and we shall concern ourselves about how to guide the child in these developmental steps. Its different way of living, caused by its blindness, may not be an excuse to get around these problems, but the seeing way of living of the weak-sighted child may neither lead us to ignore the problems of that child.

That is the reason why I invite you to explore the different aspect of this transition period in relation to the consequences of weak-sightedness.

The picture that a five-year-old child has of its world is not a stable one. Either it approaches its world from its wishes and desires and the child handles the things and situations from their emotional value, or the essential and substantial aspects of things and situations determine its action.

Questions (A): Do you agree that a weak-sighted child remains longer in a childish way of experience than children with normal sight, because their world is instable in a visual respect, too?

The world of a five-year-old child is a concrete world, that means that something exists for the child, when it is situationally involved in it. Its world is a real world of action, which can't be taken in and considered in its wholeness. A child does that, to which the situation challenges it, sometimes without bothering about the consequences, but mostly with this aspect, that it learns to discover the real qualities of the world and by that gradually to put the world in its proper perspective.

Questions (B): Is the concrete world of a five-year-old weak-sighted child just as large as the world in which a normal-sighted child of the same age is doing? Has our child equal possibilities to discover the world in its real aspects? Is our child equally sensible for the consequences of its actions? Does it learn lessons from its experiences?

The world in which the child lives is not clear in itself. As a child you need an adult, a father or mother to answer the many questions you have to see the world as a coherent system.

Questions (C): Do our children also have so many questions about the world around them? How large is the world with which they are occupied, what their attention is directed to? Is more information necessary? Do they easily approach their parents with questions?

Must has to be tried out. The world is an experimenting world, not only in technical, but also in moral respects. How far can you go in your relation with the adult?

Questions (D): What are our impressions in this matter? Is there much experimenting done by our children? Do they try to find answers to their questions by self-exploration? Is perhaps moral exploration more frequent than technical exploration?

The world is enlarging, also in social respects. Playing with the children in the neighbourhood, more contacts with other adults, other codes of behaviour and manners at home. Peers begin to be more important than adults. You begin to look at your friends, how they are, from where they are coming. What happens at home is no longer taken for granted. However, inspite of the enlarging social world, you need your parents, although you are afraid of losing them. Nevertheless, you begin to be more free from your parents.

Questions (E): What is our opinion about the extension of our children in social respect? How do they judge their peers? Do they easily contact other adults and children? Do our children need their parents more as a background? Can we find in this respect more strict criteria for residential care?

When you have many questions about the world in which you are living, then this supposes that you see a kind of interconnection in this world, a kind of order, things have names and so do situations. In the degree that you have language at your disposal, you can more easily order your world, while the present order in the world stimulates your language development. Not only by language do you discover that the world is ordered, buy you also discover that many things belong together, table and chairs, cups and saucers. You begin to see things against a background by which the world is less complex and exploration is more possible. The world is less new, surprising and momentary. You begin to experience that there is a past, when you were a baby, a present and future. Things are connected with each other and refer to each other.

Questions (F): Does the language development of our children keep pace with normal-sighted children? Do our children succeed at the same degree in ordering their world or is their world longer and more surprising because they can't get a steady grip on their world? How do they organize their world-play, when they build a town, a zoo, and so on? Is the time that they were a baby a period which occupies their minds? When parents tell the child about that period, what are its reactions?

When the child discovers an order in its world, when it experiences that nothing happens for granted, questions about the world are changing. The 'why'-questions are transformed in 'for what'-questions. Then a horse is an animal to ride on. Things get an aim and events are directed at something.

Questions (G): Are the 'for what'-questions of our weak-sighted children present at the same age (5 years) as of our normally sighted children?

When 'for what'-questions are present in your life, then this supposes that there is a line in the world. Things and situations are focussed at something. In your play you try to make something and as a child you are proud, when you are successful. This gives you the feeling, that you can master your world. Sometimes you discover that things have their own rule that things can limit your manner of dealing with them. Nevertheless constructive play is possible.

Questions (H): Do our weak-sighted children easily find their way to constructive play? Is it present in the same measure as it occurs with seeing children of the same age?

To be engaged in a constructive manner, you need sometimes the helping hand of adults. This form of contact with adults is different from the affective-emotional relation with the parents on which you are dependent as a child. In the helping relationship you begin to be more free from your parents.

Questions (I): Do parents perceive this shift in their relationship with their 5-year-old weak-sighted child?

Adults are people who want to guide the behaviour of children in a certain direction by explanations and warnings. As a child you don't always understand the essence of these remarks, but it gives the child the impression and it makes it sensible, that there are situations in which you need to be careful.

Questions (J): It is not unthinkable that in the up-bringing of weak-sighted children they will hear a good many of the above-mentioned remarks. When this is true, how do our children react to these? When this is not true, what are the motives? Not only are things and situations objects of these remarks. Sometimes also the peers in the neighbourhood or kindergarten. The same questions can be put here.

As a child you discover that a certain way of behaviour does not fit in one situation, but applies to all similar situations. When aunt Mary visits mother and they want to have a serious conversation with each other, you will perceive as a child that your present is not wanted. In such situations it is possible that mother tells you, that you have to play in the garden or pay a visit to your own room. This hint soon appears to be valid for other visits at home. The child is asked to be socially sensible, to project itself into the situation of another.

Questions (K): Is projecting oneself into the situation of another person for a weak-sighted child perhaps a more demanding task, because it is perhaps inclined more than a sighted child to be connected with a situation?

With the discovery, that there is concurrence between situation and behaviour goes the discovery that there concurrence, too, between certain behaviour and the kind of appreciation you receive.

Questions (L): Punishment is an experience, which children have to pick up, besides appreciation and affirmation, but they need to be real. Although it is conceivable that our children need more reward and affirmation, the danger seems to be present, that our children are more dependent on reward and affirmation than other children and that may possibly make them more insecure.

In the introduction of this paper several aspects have been mentioned concerning the ego development of the 5-year-old child (see there) and its self experience.

Questions (M): Just because so much happens at this age, and also because this period can be considered a vulnerable one in the development of a child, one must put the question if this is the real age at which the child, when admission to an institute for visually handicapped children is really necessary, has to leave its home. Which pro's and con's can be mentioned.

THE PERIOD IN THE EARLY YEARS WHEN THE FATE OF THE BLIND CHILD'S AGGRESSIVE IMPULSES IS BEING DECIDED*

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Every child, sighted or blind, needs to experience a feeling of safety in his dependence on his mother and father, gained by compliance with their wishes, and every child has to move out from this to relative independence and the expression of his own wishes. These will include a number of aggressive impulses.

Nagera and Colonna noted that the blind children in their group (ranging in age from 4 to 8½ years) complied with the wishes of those who were important to them, especially with those of the mother, to a degree hardly seen in sighted children of the same age. These blind children showed a tendency to inhibit any form of overt expression of aggression against those people on whom they were dependent. Looking at blind children of school age, either those who have been in treatment with us or those whom we have known since early childhood, we also have been struck by their difficulty in dealing with their normal childish aggression, whether its expression is inhibited or not, by the many devices they use to cope with it, and by the often bizarre results.

With these distrubances in mind, it is obviously important to pay particular attention to the period of growing individuation during the second and third years, when the child finds himself in collision with his mother and must learn that the loving mother can also be the angry mother, that he can love and hate the same person. This should lead to object constancy, by which I mean the child's ability to maintain a positive comforting inner image of the mother, and to maintain this, irrespective of satisfaction or dissatisfaction at her hands. I am using object constancy in the sense of faithfulness to the mother, and would distinguish it from object permanence, an earlier phase of development, when the child becomes aware that the mother continues to exist though not present. Object constancy - faithfulness towards the mother - should lead also to some compromises in feeling and behaviour towards her and not to the constant ambivalence or almost total suppression of aggression that is seen in some blind children.

What is the history behind this? Blindness probably delays the perception of the person as a whole. At what stage does the blind child regard his mother's many and varied ministrations as emanating from a single being like himself? For instance: Sarah's mother though that Sarah understood "Noggy" (the name for the cat) as an entity before she understood "Mummy" or "Daddy" in this way, because she could more easily feel the whole cat. Being able to do this exposed her to a less bewildering variety of sensations.

Before the blind child has acquired a concept of bodies by playing such games as finding mother's nose, then his own, etc., he probably has only a very vague, piecemeal image of her. The number of different sensations (touch, smell, sound, etc.) with which she presents him are not easily unified without vision.

Without sight to attract him, the blind child has the task of extending his interest in his own body to interest in the mother's body and so to the world around. Without the help of sight he has to become aware that she is a separate creature, and that she has a similar body with a continuing existence. Indeed Fraiberg found that none of the blind children in one of her studies was able to sustain a search for the mother, implying the belief that she " 'must be someplace' ", until they reached the last age of 25 months (Fraiberg, 1977, p. 176).

This slower development of what I am calling object permanence, knowing that the mother continues to exist, though not present, must in its turn delay the development of object constancy. To achieve this, the blind child has to recognise, when he comes into collision with his mother, that the angry mother is still the loving mother with being able to see that she still looks the same, and he has to resolve his mixed feelings towards her so that his love for her controls the hate. In fact, the blind child may be in serious trouble if he does not have a sufficiently stable inner representation of his mother as a basically loving person by the time he clashes with her. This lack may account for the strange withdrawals from all his family seen in some young blind children.

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* Parts of this Paper are taken from Wills, 1970.

However, parents with whom one works regularly may realise this danger or can easily be alerted to it: When Simon was 18 months, his parents noticed that he withdrew or "sulked" on the rare occasions when they needed to scold him. They therefore attempted to retain contact with him subsequently, either by voice or by sitting near him, in this way supporting his idea of them as basically safe loving parents. When Cynthia was 2 years, her mother occasionally had to smack her after several warnings, because Cynthia would bite her siblings when they got in her way. The mother said she always took particular care to comfort Cynthia after such a scolding. However, in the earlier part of her third year Cynthia refused to take food from her father for a whole week after a smack from him. (The mother with whom Cynthia was in more constant contact, could smack her occasionally without any such repercussion.)

While any blind child's ability to handle aggression towards his family depends on many factors, special attention should be paid to this particular area. Some mothers naturally handle the situation well, others need alerting to its potential dangers. Tendencies to cramp the child's expression of aggression in order to have a "good" child are generally overcome by the interest in furthering his development and in having a more normal child who can use aggression in socially acceptable ways.

However, in our nursery school we have frequently been struck by the compliance, passivity, and inhibition of aggression in the blind children. In some of them no doubt the aggression is fully unconscious, and the impulses have been repressed or projected. In others we get hints that the impulses, although still conscious, are perhaps too primitive and archaic to be fully accepted by the child's relatively mature ego; so they can find no expression that the child can allow, or none that will not endanger his relationships to people. Sam gave hints of this: In spite of my constant attempts during Sam's 5th and 6th years to show him his cross feelings with me when they arose, Sam scarcely expressed any such feelings himself. He very rarely allowed himself a normally aggressive fantasy in play, since he insisted on using me, and not a teddy, to act it out. When he could be induced to substitute a teddy (as the victim), the biting fantasies he occasionally produced were startling.

What is it that may be going on in these children, not only in those who control aggression while remaining aware of it, but also in those who repress it fully? Here we are fortunate in having analytic material to turn to.

Prior to the setting up of our day nursery school, we had four blind children referred to us for intensive treatment (4 or 5 days a week). With this problem in mind, examination of these children's records proves instructive. Three out of four showed unusual difficulty in handling their aggression towards the important people in their lives. They remained in a very ambivalent state, swinging from love to hate. The fourth did not demonstrate the same difficulty as the other three. Reference to her early history showed that in fact she had had some sight until 3 years of age. She had therefore not been so dependent on her mother during her 2nd and 3rd years, and may also have been able to build a more stable positive image of the mother.

The other three presented depressed and sometimes difficult behaviour in nursery school or school. Time allows me to quote only one of the cases:

Winnie, treated by Miss Cecily Legg* from 2 - 4½ years, presented the picture of a depressed child in our nursery school. Her father had died. She rarely expressed aggression towards her deaf mother. However, in the more permissive atmosphere of the treatment hour her underlying ambivalence emerged and physical attacks on the therapist alternated with caresses. In other words, she showed a lack of fusion. Her love for her mother - and so for Miss Legg - did not control the hate. We would regard this as due to a hold up in development because of earlier adverse external or internal conditions such as: absence of loved people, lack of emotional response from them, the breaking of emotional ties as soon as they formed, or deficiency of emotional development for innate reasons. Miss Legg believed Winnie suffered from all these adverse preconditions. With such a child one would try to make up for these earlier deprivations.

Indeed, even when mothering is adequate, the early life experiences of many blind children is disagreeable and even traumatic due to the need for hospitalisations and various medical interventions. We should therefore encourage mothers and caretakers to give such children as much positive experience in the early years as they can. For instance, Anna Freud suggests that in such cases they should keep the child in close contact and try to avoid further separations; they should look for enjoyable experiences for him, and so on. This strengthens his loving ties to people and provides a better balance between libidinal and aggressive impulses towards them, enabling him to make some compromise, some fusion of his feelings and their expression.

There is something else that I believe we can do. Since we know that overcompliance is a danger later on for these children, we should try to dig out the essential personality of the child from an early age, encouraging him to express his feelings, especially his angry feelings, in suitable ways. Fraiberg provides a telling example of this: Jack, 17 months, (retrolental fibroplasia) had a severe setback after his mother was unavoidably absent for 3 days, during which Jack was left in the care of various friends and relatives. Soon after her return, Jack regressed in nearly all areas of development. In particular, he had screaming fits which lasted for hours. When the mother held him there was a brief respite, but at these times he would crawl desperately over her body as if trying to get as much as possible of his own body surface in touch with hers. He abandoned his toys, was wakeful at night, and lost interest in food. The screaming appeared to have the quality of helpless rage. So when Jack began his shouting the mother was encouraged to provide him with pots and pans or banging toys, and to suggest he pound and bang them. This gave him a more age-adequate way of expressing his anger. The mother reported this worked "like magic", and Jack soon became his old self (Fraiberg, 1968, p.289).

Other forms of more direct motor discharge relieve some children: Simon, mentioned earlier, would run up and down the garden when he was cross because his mother, upstairs working, did not get him a toy.

In these early years, and especially as speech develops, we can bear in mind Katan's advice regarding sighted children, (and even more applicable to blind children) that it is important for parents to offer the child words for feelings of anger, excitement, happiness and sadness (Katan, 1961).

These are emotions which the blind child is not handicapped in perceiving, but for which he often has no words. Let us pay particular attention here to feelings of anger. By giving a blind child a word for anger, we implicitly sanction his angry feelings. We can still veto their expression, for instance, "I know you are angry with me but you can't bite me". At the same time we are giving the child a means of facing his anger without acting on it. He feels understood and supported, so that he has some chance of sorting out his mixed feeling, his ambivalence, towards us.

Incidentally, verbalisation of the child's angry (and other) feelings increases his ability to distinguish wishes on the one hand and reality on the other, always a slow process for blind children.

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* I am indebted to Miss Cecily Legg for this material.

I believe also that some children are helped if we verbalise our feelings (and indeed our failings) to them: Tim, 10 years, a bizarre blind child who rarely put any feelings into words, suddenly said to me one day "I am sorry you didn't visit me at the weekend", a sentiment I had expressed to him.

One gets the impression with such children that they are not aware other people have feelings like their own. They are often relieved by such remarks from the adult as "When I was little I felt. . ." and come back with a further question, showing that they have taken it in.

Verbalising our feelings and failings may help the blind child in another way, it shows him that, though far from perfect, we survive. Because the blind child is often confused about reality, the world holds many dangers since he believes it to be too dangerous to be dependent on anyone not wholely kind and reliable: Sam, 6 years. During a film session I accidentally knocked the lights over with a great crash. I explained at once "Silly Miss Wills broke the lights", to which he replied "Bear did it" (he was very frightened of the teddy bear). Later he again said "Bear broke lamp". When I said he seemed afraid to say I did it, he replied: "Then I wouldn't like you".

One might reply, "Miss Wills does make mistakes sometimes but. . .". Discouraging the child's idealisation in this way means he also need not be perfect, he can make mistakes sometimes too, and still survive. It also reduces the danger of splitting, that is, seeing some objects, in this case me, as all good, others, the teddy, as all bad.

Reverting to our main theme, of course the behaviors of lively siblings do as much to sanction implicitly normal childish aggression, but for many blind children, perhaps because of their dependence, even this does not seem to be sufficient. Such children tend to bottle up their aggression, either by repressing it, which often leads to hampering fears, or by keeping it strictly to themselves, where it cannot be worked over. They often also fear retaliation, for example: Sam, mentioned earlier, a very compliant child at the nursery school stage, was able to ask me about some of his aggressive ideas only when he was 7. His queries would begin "What would you do if I. . . smacked you hard, knocked your head off?" (He added that mother did this to someone once). "What would you do if I broke the brake?" (on the car).

Expression of these ideas allows of discussion and working through, so that the child can learn other ways of coping with his anger.

Conclusion

In this paper I have indicated possible strategies for furthing a normal development of aggression in the blind child, so that it leads to object constancy on the one hand and on the other enriches the child's personality in a variety of fields. I am well aware that many parents and workers employ these strategies intuitively, with excellent result, but I believe it is useful to spell them out.

I have suggested that we can hasten object permanence by various body games and that we can support the child in achieving object constancy by alerting parents (and caretakers) to the blind child's special problem of reconciling his angry and loving feelings towards them. I have also suggested certain measures for children who remain in an ambivalent state, who have not fused their love and anger towards the mother and others. I have indicated forms of play which enable the child to displace anger with the mother onto toys. I have mentioned the uses of verbalising the child's feelings, and in some cases, our own feelings - and failings - so that in the end he comes to realise his joint humanity with us.

Diagnoses of Hampstead Clinic cases

1. Cynthia: retinitis pigmentosa.
2. Sam: retinoblastoma.
3. Sarah: retinitis pigmentosa.

4. Simon: retrolental fibroplasia.
5. Tim: retrolental fibroplasia.
6. Winnie: congenital cataracts.

All children were educationally blind, that is, they were expected to learn Braille at school age.

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SHATTERED PRE-BIRTH DREAMS AND THE PARENTAL IMPACT ON THE SOCIAL-EMOTIONAL DEVELOPMENT OF THE INFANT

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PART I Stages of Parental Development

'Marlene was 23 hours old and we were in my hospital room, drinking champagne and celebrating the birth of our first child, when the pediatrician walked in. I thought he was going to tell us when we could be discharged. Instead, he told us that Marlene was blind, that her eyes were not properly formed, that she would probably never see. After he left, we walked over to the nursery to see Marlene again. Then Tom had to go home. I walked back into my room and, you know, it was filled with flowers and gifts. Just the hour before, it had all seemed so gay and festive. Now, all I could think was: 'It's like a funeral'. And, in a way, it was a funeral - because a dream had died.'

Under the best of circumstances, having a child, especially a first child, produces stress on the parents. New family relationships have to be established and old ones adjusted. If this is a trying adjustment for the parents of a normal child, it is an overwhelming time of adjustments for the parents of a handicapped child. The expecting mother and expectant father have many fantasies, plans, and experiences which later heighten the impact of feelings of guilt, sorrow, and failure which are associated with the news that their eagerly anticipated child is handicapped.

There are many mental images and fantasies of future experiences with the child. Anniversary dates bring thoughts like 'next year our baby will be enjoying the colorful Christmas lights and decorations'. The baby's room is decorated for visual stimulation. Toys are purchased which often include a colorful mobile. All these dreams are shattered with the news: 'Your baby is blind'. And yet, the parents must face these reminders of having a different child than the one they expected when they wind up that musical mobile they so joyfully purchased in anticipation of his birth. They must face the fact that the baby cannot see the colorful animals that dance around in time to the delightful music of the mobile.

Whatever reasons an individaul may cite for wishing to have a child, one thing is certain: the meaning of parenthood is, for every person, deeply involved with all aspects of the personality. Therefore, the death of the dream of a perfect child strikes at all levels of the personality. It shakes the very foundation of the person. The individual's psychological make-up as well as support systems available help determine greatly his/her ability to experience the necessary stages for adjustment and to effectively parent this child.

The sense of failure in bearing a defective child rouses questions of conscience, questions of motive, as feelings of guilt are activated: 'Why did I want this child?' 'Can I be a good parent to my child?' 'What did I do to cause this?' One's sense of trust is challenged. The parent suddenly is confronted with reason to question his assumption that the world and his environment is basically a non-threatening place. The world becomes a place filled with dangers and defects which cannot be healed or cured as well as overwhelming grief. One's sense of control over one's life is brought into question. All of these areas which are shaken usually results in a major re-thinking of one's values and philosophy of life regardless of what they might be. The importance of life, questions about the most important aspect of having a child, as well as questions about an imperfect person having the same value as a 'normal' person are just a few of the issues raised.

With the news that one has given birth to a blind child, there are stages of grieving which one experiences similar to those discussed in the works of Elizabeth Kubler-Ross, (Death and Dying). However, there is a difference between grief and eventual acceptance of the death of a loved one and the grief and acceptance of the loss of one's dream of a perfect child. In the case of death, one must adjust in some manner to the person's absence. However, in the case of the parent of a handicapped child, the parent must parent the very person who provokes such a sense of loss and anguish. During the blind/visually impaired infant's early years, the parents are experiencing, in varying intensity and sequence, the six stages of grieving.

It is no tragedy if an elderly widow does not complete the grieving tasks two years after the death of her husband. A 78 year old woman told me: 'It's so hard to believe he is gone. At night I sit in his rocking chair and it almost feels like he's holding me.' This otherwise 'normal' elderly woman was fixated at the denial stage of grieving. It gave her comfort as well as avoidance of great pain. A few months later she died. In the case of grieving parents, however, it is critical that they do experience and pass through the grieving stages. To become fixated at any stage is dangerous to the ultimate acceptance, bonding, good self-esteem, and development of the handicapped infant.

Not only do anniversary dates and dreams of experiences rekindle grief but each new developmental stage of the child does as well. Acceptance reflects new dreams and directions for the child, as well as periodic sadness with reminders of the lost dream. One can experience great joy and pleasure of the child's accomplishments and also feel a sadness reflecting on what occurs for a 'normal' child at each new developmental stage.

The Denial Stage

The initial reaction to the news that 'your child is blind' is generally denial of varying degrees. The immediate state of shock is manifested by a sense of unreality and some difficulty in holding onto the news. 'I didn't hear it correctly.' 'It can't be true.' 'But the doctor in the delivery room said everything was OK.' 'It all seems like a bad dream.' 'This can't really be happening.' 'They'll fix it. Medicine can really work wonders.' 'But the pregnancy was OK. There must be a mistake.'

This sense of unreality is normal and healthy; this is what helps the parent to hold onto his sanity while under shock by giving his psyche momentary escape from the overwhelming trauma. Denial often continues after the initial absorption of the news. It often takes the form of seemingly naive statements about the implications of the handicap for the child's future: 'He won't have to use a cane.' 'It won't affect his life in any way.' 'I bet he'll develop some vision as he grows.' Again, this denial of the implications for the future functioning of the child is normal and healthy. The parent simply is not yet ready to begin dealing with the problems of the future and must ward them off by denying them. He has enough to cope with in the present.

Denial sometimes becomes severe, however, and is a fixated stage which results in denial of the blindness and the child. 'This child wasn't meant to be mine.' 'This child is a shame to our family.' If this kind of denial continued to actually threaten the child's total well-being and, in spite of intervention, the parents were still unable to provide responsible parenting, then, hopefully for the rejected child's sake, a nurturing, accepting, adoptive family would be available to him. In such a situation, competent mental health services are mandatory for the child's and the family's best interests.

In confronting the parents' denial, it is critical for professionals to determine the nature and degree. Initial denial of the news and subsequent denial of the implications are normal. However, denial and total rejection of the child requires the qualified mental health professional's intervention. In discussions with other parents, many professionals try to move the parent immediately out of the denial phase and get them onto 'productive' tasks such as educational planning. This is a serious mistake since the priority should be enhancing bonding with educational tasks naturally following, often with the assistance of professional intervention. Parents should be allowed to pass through early phases of grief without being burdened with overconcern about the 'education' of their infant. The experiencing of all stages of grief is essential for coping with the shock, for developing an adequate adjustment, and for developing a good parent-child relationship.

The Anger Stage

The anger stage punctuates the grieving process. It is there in many faces and needs to be expressed. Some of the faces of anger are: bitterness - at the world, at others for 'having it so easy': the 'why me?' question; self-hate - anger with oneself for getting into this trap; anger at fate, at God; anger with spouse - especially if pregnancy was unplanned; hostility towards medicine and technology - which didn't prevent this and can't cure it; hostility towards doctors - for abruptness and a seemingly indifferent attitude.

Suppressed anger is extremely dangerous since it may eventually be directed towards the child; this is the basis of the battered child syndrome. Anger repressed can be turned against oneself or against the child which results in ineffective parenting. A sense of despair creates intensity of anger. That is, the anger becomes overwhelming because one is in such a helpless situation and cannot change the blindness, remove it or undo it. One can reduce the sense of helplessness and, thus, the anger too by: 1) venting the anger, and 2) focusing on what one can do, (i.e. one can still parent and encourage the child to reach his maximum potential).

Fixation in the anger stage is often due to not adequately expressing anger. There is a moralistic taboo against expressions of anger, (i.e. 'it's not nice'). A neurotic reason for suppressing anger is seen in those who fear retaliation of a greater magnitude. Professionals can be cathartic with angry expressions. If recognized as such, the angry expression, even if misdirected, can be helpful if heard and understood rather than being a source of concern; the expression of anger by parents, even if misdirected towards the professional, can be helpful if recognized and understood. Hopefully, the professional will hear the parents and act appropriately and not make them the target of retaliation. If the motives behind the anger are understood and the person is allowed to constructively vent, the anger can be dissipated.

The Guilt Stage

A third stage of grief is one of guilt or self-blame. The grieving parent needs time to explore, question, and put to rest each concern involving causes of blindness and his direct (if any) involvement in his child's visual defect. Later, a parent must also deal with guilt feelings at having wished at some level that this child would not live, would die, since facing the blindness was so overwhelming. Eventually, one needs to come to peace with the cause of the child's blindness and rest with the fact that he in no way intentionally caused this, if there is any connection at all. The professional continues to point out the facts of possible causes and gives assurances to the parents that they could have done nothing differently. If the situation is such that one could have done something different had the pregnancy been known (i.e. avoided x-rays, medications), the parent needs to be reminded that this was not done intentionally.

The Bargaining Stage

In the stage of bargaining, there is a frantic search for a cure which will make everything all right. While searching and getting additional medical opinions, this can also be helpful to the parents in finally being able to hear the reality of the situation, even if they need to hear it repeated many times. Again, some may stay sidetracked in a lifelong search for a cure, medical or religious. This is to the detriment of the child since it directly implies that he is not a worthy, valuable person just as he is. Energy is diverted to making the child different, instead of energy directed to parenting and encouraging him to develop to his maximum potential. In such situations the professional can be of most help by presenting the reality and the basis for the negative reality. One needs to refocus the parents to the painful reality whenever they voice false hopes. At the same time, the professional must emphasize the child's strong aspects which he'll need to develop.

The Depression Stage

Support from others is most needed during the stage of depression and it is also the most remote and difficult to receive. Depression is highly dangerous to the entire family. It can lead to suicide, destructive escapisms (i.e. drinking, drugs, promiscuity, divorce and rejection of the child). This phase of depression is characterized by loss of total self-esteem and worthiness, feelings of total failure, sense of being up against a wall or at a dead end, guilt-ridden, strong sense of isolation and being immobilized. Only by expressing it does a parent eventually become free of it. A professional who is able to hear the most painful expressions will be of great assistance in guiding a parent through depression.

Acceptance

When acceptance is reached, the parents are finally at peace with themselves as people and as parents. They can find happiness in their relationship with their blind child. This does not mean that they will not have periodic recurrences of sadness, anger, guilt, and depression but that these episodes will be briefer and further apart. Thus, when acceptance is reached, I am saying that the parent will have rebuilt his self-esteem and will have developed a good parent-child relationship.

Acceptance does not mean liking the handicap. It does not mean that the anguish and lost dreams will be forgotten. They will always be remembered but relived with less frequency and with lessening intensity. Acceptance does not mean enjoying the necessity for special programs and agencies. Instead, you learn to appreciate the existence of good programs and agencies and develop confidence in your ability to make the judgements which are best for your child. It does not mean never wishing your child could see. Of course you would like for him to have sight! You simply abandon this as an ever-present wish, because you know it is a fact that he cannot see and you know you love him dearly even though he cannot see. It does not mean never crying or feeling angry and depressed. These feelings will periodically return. Their recurrence does not mean that you have not adjusted or that you are losing your ability to cope. It means you are human.

The Professional Influence

I have placed great emphasis on the need for the parents to fully grieve since I see grieving work and parents reaching acceptance of self and child as an extremely difficult task set forth with many road blocks. If the parents are not able to do their tasks of grieving fully, the critical bonding of the parent and child will be jeopardized. I feel professionals could play a much more important role of enhancing the likelihood of bonding parent and child.

Too frequently, the news is given abruptly by the busy doctor. No better place could one's time be spent in seeing the effect you can have in starting the grieving process and modelling. Showing genuine concern and caring is essential. The abrupt giving of the news is frequently done to protect the professional from uncomfortable feelings. I suggest that professionals seek mental health counselling for themselves in dealing with such painful situations. They will personally benefit by having a richer life when they are able to face and deal with life experiences rather than retreat quickly. The most essential benefit from this is critical for the clientele. A course in crisis-intervention should be a standard requirement in the education of all professionals in the helping professions. Agencies, hospitals, private practitioners should continue assistance in crisis management either in on-going staff development or periodic consultations. This would provide the opportunity for all helping professionals to receive personal assistance in dealing with painful, difficult stiuations. This should also help to reduce the 'burn-out' rate in the helping professions.

Nurses frequently prefer avoiding new parents of deformed infants. I am familiar with a situation in which the mother on the second day after delivery was told by phone that her baby was dead. The modelling for coping with this death was started by an impersonal telephone call. If this had been handled personally with respect and human dignity, possible the outcome for the parents would not have been one of compounded tragedy.

And yet, this is where the modelling begins and the news is often received. How much better it is for the clients to hear the news from someone who is not afraid of pain and can indeed express concern and caring. Instead many professionals feel that the family, friends, neighbors who know them better will give such support. Don't count on that - they are upset and grieving too. Often they stay away too, because they do not know what to say. Perhaps worse is what the friends, family, neighbors do say; often this becomes the occasion for repressed feelings of hostility to show or for the advancement of caring but insensitive remarks that can cause a breach in what was formerly a good relationship.

Two examples of a 'religious' nature involve explanations of the cause of the birth defect. The first, more hostile theory, might be termed 'The Gutless God' wherein the handicap was caused by some 'sin' of the parents with retribution visited upon the child. This theory allows the advocate to express his subtle anger to the parents in an 'acceptable' manner. The second theory, well meaning and meant to comfort, feeds into the parents' feelings of: 'Why me?'. This message is the 'Defective Babies' approach whereby the parents are chosen for this child due to their sterling qualities and worth. The theory implies an inventory of unborn, defective children who must be appropriately placed. The popular U.S. columnist, Erma Bombeck, recently wrote a column promoting this point of view. Not surprisingly, the parents will quite likely hear both of these views presented and, if they are unsuspecting and depending on where they are in the grieving process, they may become more confused and resentful.

Or the professionals may feel that getting in touch with the 'proper agency' will help; that is often true but only for the educational needs and resources available. The important factor in modelling is not the recommendation or even the motives of the professional; the emphasis must be placed upon the subjective perception of the grieving parent. While the professional may be objectively and morally 'right' in his recommendations, he may, in fact, be 'wrong' if the parents receive the impression that the professional is only concerned with his specialty and not with the people. At this point, the parents begin to see themselves as the parents of a 'case' and not a child while they, themselves, become 'appointments' rather than people.

Immediate and continued crisis counselling by the medical team involved in needed. This sets the model for grieving, the 'OK' for expressing sad feelings, the comforting knowledge that someone can hear you and not desert you. This will establish the framework for grieving and bonding to begin simultaneously. Since child development theorists have shown the essential correlation of bonding and the ultimate growth and development of the child, it is to this issue that professionals need to address themselves; they cannot assume someone else will assist with it or that the family can handle it all alone.

Frequently, there are many medical appointments and many specialists involved - a brief moment of connecting with the positive aspects of the child, or parent-child relationship (i.e. parent strokes crying blind infant's cheek and child quiets. The professional comments: 'my, she is responsive to your touch'), or comments about other successful blind children or adults the specialist knows. All of these comments help give the parent feelings of value seen by others.

The abruptness in medical appointments often seen with severe handicaps is really uncalled for - especially when it conjurs up bad feelings and unworthiness in an already wounded parent. I want to stress that professionals should examine their hurried aloof manner in dealing with these patients; they will undoubtedly find that their abruptness is not strictly due to running late, over-bookings, or urgent calls to which they must respond. Often, too often, it is the result of their need to avoid their own pain in facing and dealing with the situation. I cannot emphasize enough the great unrealized potential the professional has for enhancing bonding and grieving. Professionals need to be concerned about the possible future of the child if the bonding experience does not take place. Support, comfort, and compassion could be offered by caring professionals. Each such occasion would be one more positive experience that would assist the overwhelmed parent in coping and gaining control of the situation.

My concern about parents unable to complete their grieving work is due to messages of 'stop grieving' which are so frequently given. The professional unwittingly gives this message to 'stop' when sensing his own discomfort and pain at confronting such tragic grief. Family members and friends also have this very human response. However, the professional needs to be self-aware that such an avoidance tactic serves himself more than the child and is not a professional response.

In summary, the painful feelings need expressions if the fragile seeds of response (joy, satisfaction with their child, satisfaction with parenting) are to grow by support, care, and nurture. This still gives all respect and recognition to families who successfully do this on their own. However, the statistics of rejected, abused, handicapped children are high; divorce rates are higher for families with handicapped children. This indicates that professionals cannot in good conscience sit back and expect parents and children to find the pathways to a bonded parent-child relationship, and healthy growth, all on their own without caring and compassionate support.

PART II Social-Emotional Needs of the Infant

'What do I remember? I remember wanting to share so much with a child. I majored in child development in college, and had worked with children for ten years - and thoroughly enjoyed them. During my pregnancy, I had the usual fears of having an abnormal child. But I dismissed my fears with statistics; I had a good chance of having a healthy child. I really expected a normal child. But no. My baby was born blind.

'It's difficult to express. . . the immediate pullback of my feelings. I didn't want her. What would I share with a blind child? All my hopes of normal parenthood were shattered. There might be other problems, in addition to the blindness. It was too much, too overwhelming. I hoped my premature baby wouldn't make it.

'Then. . . watching her through the window of the Intensive Care Nursery, I began to notice how cute she was. If only she were not blind! Such a cute baby, with dark hair and pink cheeks - especially cute for a preemie. She'd stretch her little arms, yawn, and put her little fist in her mouth, getting ready for feeding. I scrub, gown, and go in, numb, to feed her. As I hold her, she cuddles so warmly, so responsively. . . and I begin to realize that she is a child. A child I wanted very much. A child with all the needs of any other child for loving, nurturing, guiding, and parenting.'

Consistent with learning theory, love is learned. There is a broad significance in the child's earliest relationships. The number of cues in the child's environment are few during the first year of life; mother is the primary cue, the primary relationship. She is practically the sole representative of the larger world. Thus, the initial emotional relationship learned with mother is what provides the child's primary orientation towards the larger world later on. The greater the proportion of pleasant, rewarding exchanges with mother, the greater is the ability of the child to experience relaxation, security, and a sense of well-being. This in turn provides the optimum situation for maximum development of the child's capabilities.

There are many misconceptions about the bonding of mother and child. Many people have the notion that there is an 'automatic' or 'natural' love between mother and child. Perhaps this idea comes from observations of the animal kingdom - the imprinting of little chicks, the fierce protectiveness of the mother lion, etc. Certainly, love, protectiveness, bonding, is the usual outcome of a mother-child relationship. However, we have come to recognize that bonding occurs as a result of mother-child contacts. Popular courses in pre-natal preparation reflect this recognition in their emphasis on rooming-in as an important element for both the mother and child in establishing and building this bonding as early as possible in the child's life. Some changes in the intensive care nurseries also reflect this. For example, many intensive care nurseries now encourage parents to hold the infant often, to be involved in his care as much as possible, to nurse the baby if possible, to bring in toys and clothes for the infant. Some writer (Leboyer is a prime example) have gone as far as to assert that the immediate contact of mother and child in the delivery room (both physical and eye contact) are critical to the proper founding of the mother-child relationship.

While it is important to recognize that the mother-child relationship is something which needs to be promptly established after the the birth of the child, it is equally critical to note that the relationship is not immediately, properly, and permanently established by anything so simple as one nursing, one episode of eye contact, or one night of child care. But, under normal circumstances, these are the beginnings of the process of bonding. Bonding is a dynamic relationship between mother and child in which each validates the other's worthiness as a person. Thus, bonding represents ego fulfillment for both mother and child. The mother is 'fed' (emotionally) by being able to meet her child's needs and by seeing his responses to her nurturing. This provides her a demonstration of her capability as a mother; this gives her confidence and strengthens the love bond.

Bonding is a process which occurs over a period of time. Once bonding has occurred, it retains a dynamic quality and, as a result, bonding is never 'permanent' or static. Bonding is not achieved and then present forever; it must be maintained by the interaction of mother and child. If situations or events occur which interfere with the proper mother-child relationship, the bonding of mother to child can be warped, destroyed, transferred, or at any time endangered.

This emphasis upon mother-child bonding in no way diminishes the father's important role of care and support. We all need to remember that the father is grieving too. The parents at times can be supportive to each other, but each can also be in different stages of grieving. Differences in stages can make communication and understanding each other more puzzling and difficult. The father's well-being and need to grieve fully is equally as critical as the mother's.

No parent wants their unborn child to be handicapped; no parent expects a handicapped child. And the greatest and most common fear during pregnancy is that the child will somehow be 'imperfect'. Therefore, any handicap is a severe trauma for the parents. The needs of the child himself - handicapped or not - remain the same: the basic psychological need is for the security that comes from a satisfactory parent-child relationship. Perhaps this need is especially heightened in the child whose very survival in the world represents - for his parents - the death of a dream.

The fulfillment of this need depends to a large extent upon when the parents, especially the mother, are able to resolve the conflict that arises from the birth of a visually impaired child: rejection of the child due to the handicap and love of the child as a child. The length of this struggle is as important as the outcome as the child may go through a period in which he may not receive the full amount of his parents' love and attachment. Parental acceptance of the blind infant can be helped by professionals holding the baby, playing with him in a normal manner, pointing out his attractive features and demonstrating obvious pleasure in and acceptance of him. (Fraiberg, 1975)

The professional representing 'authority' has a very powerful potential, the magnitude of which is unrecognized by most of them, for enhancing bonding of mother-child. Professionals have the primary contact with parents in the early life of the child. They are the primary 'objective', authority-figure contacts (i.e. they are not part of the grieving family or the circle of shocked friends and neighbors). Professionals do have a tremendous impact upon parental attitudes towards the child. This influence can help to facilitate the shift of attitude from one of rejection to one of acceptance.

Parents who have rejected a child have done so because of overwhelming emotional pain. When professionals approach a situation in which the child appears to be rejected, it is important not to react angrily towards parents - for this is tantamount to accepting the situation as static. Since rejection of a child is never fixed and unchangeable, and that rejection will not have life-long negative consequences for the child if the parents shift towards acceptance. If the professional keeps this knowledge in mind, he can be crucial in helping turn the tide.

Just the need to see the specialists (i.e. medical, educational) focuses on the abnormality of the child. The professional can assist acceptance by making genuine, gentle, positive comments about the child: 'My, I'm delighted to see her!' 'It's been fun to hold her.' 'She really snuggles into my arms.'

Every child's primary emotional need is for love from his mother - that is, for a parent-child relationship which nurtures growth and independence. If that relationship is lacking, or if the parent emotionally rejects the child, then the child's total potential for development is in danger. Certain specific situations create a very high risk for a faulty parent-child relationship, one of the foremost being that in which a loss of the parents' expectations for their child occurs. As Fraiberg, Smith, and Adelson (1969) pointed out: 'No educational strategies can succeed if a baby has not found meaning in his world through his human partners and if he is not bound to this world through affectional ties to his parents.' (p. 123)

As Curson states: (p. 63) 'For the baby, his own body and the body of his mother are his first toys. He plays with his hands; and with his mother's hands; he pulls her hair; she touches his toes; she tickles his tummy; he feels her face; he pokes his finger into her mouth. Through this mutual pleasure in touching, the infant gains knowledge of and confidence in his own body. He learns to value and use his body. For the blind child, equally, this is of crucial importance; and yet, in many cases, his mother is too sad, too preoccupied with her grief and disappointment in his blindness, to gain pleasure from playing with her baby and letting him play with her spontaneously.'

Contrary to recommendations of many infant stimulation programs which stress development of independence, I would suggest a longer time before weaning if this is something mutually enjoyable and if the early feedings were with a numb, grieving mother. The interaction which can occur during feeding times, the cuddling, warmth, love, and enjoyment are important. This in no way suggests that I recommend a slow down of all skills for independence but only of specific ones. Early feeding is often such a mutually enjoyable time that to push a baby onto a cup, when both he and his mother are just starting to enjoy it, is to rob the child of a critical interactive time.

The research of Fraiberg and others has created an extremely useful body of knowledge about specific similarities and differences in blind infant's development. This should reduce some of the parent's fears and anxieties about the child's development. The parents must be made aware of this knowledge as early as possible in order for them to become informed and gain the peace of mind that this understanding will give them. A calmer, less anxious parent will be more able to spontaneously react to her infant's cues and develop an interactive, loving relationship.

Given the effects of professionals on parents, they too must be introduced to this body of literature, for by becoming knowledgable about the specific capabilities and timing of the blind infant's development, they can more appropriately assess and understand the progress in each of the developmental areas and, thus, interact with the parents on a more relaxed, constructive basis. The professional cannot be allowed to simply refer the child and parents; the professional must also interact with the people and agencies to which he may have referred them. If he is to continue a relationship with them in his own specialty, he must also understand the unique ways in which blind children are like sighted children as well as the ways in which blind children are different. Especially must he understand that 'different' is not synonymous with 'defective', that blind children can become as independent and capable in most areas as their sighted peers although their tasks and timing to reach that goal are not necessarily the same.

As Brazelton (pp. 360-361) points out, the first item on a newborn's agenda is to gain control of his physiological system, especially body temperature, breathing, and heart rate. Next he begins to organize states of consciousness from sleep to intense crying. Along with this the infant's social abilities begin to unfold. This is no different with a blind infant. He starts to develop a repertoire of expressions - bodily, facial, postures, changes in vocalizations to elicit responses socially and to meet his needs. As the mother picks up on this cueing and reinforces it, it continues to grow, expand, and develop into cooing, smiling, and demonstrations of affective states not observed in the younger infant (p. 365). By this successful mutual exchange the foundations for the emergence of autonomy is laid.

In the beginning the parent provides a direct tactile, auditory, kinesthetic approach. Once the infant becomes familiar with the parent, the infant begins to reciprocate his ways of interaction. All this early interaction has an effect on the infant's self-competence in dealing with inner and outer systems. This is the beginning of self-esteem. Reading the blind infant's cues correctly, being able to respond are essential for helping to develop a positive self-esteem. The infant is learning about himself, the reactions of others to him and is in the early stages of emotional and cognitive awareness.

Wiles (p. 46) indicates that: 'Both blind and sighted children do not develop well without a strong relationship with the mother or her substitute; but both need to make some move toward a measure of independence. . . it is crucial for his further development how his strong tie is loosened when he starts in a day nursery group.' As Curson suggests, it usually takes longer for the blind child to reach the stage in his development where he can separate from his mother and accept a peer group setting without a great deal of stress. It is of critical importance that this separation from the mother in a nursery school be gradual and always to the level in which the child can experience it without distress. This will eventually give the child the confidence, self-esteem, and automony to separate when he is ready.

In summary, the most important relationship which influences a child's total life is the one with his parents. According to Lowenfeld (1964), the parent's feelings and attitudes towards the child are primary in influencing the child's total development. The parents hold the key to his independence. They must slowly allow him to have all the freedom he can handle at a specific age so that he will develop a good self-image, firm self-reliance, and, eventually, the ability th function quite apart from them.

'Hold me gentle, mommie,
and help me go into the big new world
Unafraid, alive and ready
To reach beyond us to try and test myself
To reach into a lifetime of tomorrows
To reach for others
and find new places and new ways
to sing my song and dance my dance.

Smile your bold proud smile
and start me on my way
Through the door and down the path
Made safe by your love
Made possible by your wisdom
Made approachable by your courage for me.

Hold me gentle, mommie,
And help me go into this big new world.'

Adrienne Kennedy

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INTERVENTION FOLLOWING BIRTH - THE BEGINNING

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A 26-week, 720-gram female was born to a gravida 3, para 2, 24-year-old mother. Her father was a partially employed house painter with a drinking problem. Both parents had less than high school educations.

Crystal immediately developed respiratory distress and was placed on a respirator. She hovered near death for her first few days of life. By her second week, she had had heart surgery. She continued on a respirator for two months and required oxygen for an added two weeks. She made a slow but steady weight gain during this time. Becuase of her disease and prematurity, feedings were started slowly and nutrition was maintained by intravenous feedings which needed to be restarted approximately once a day. She also was stuck for blood work one or more times a day. Her environment was an isollette, situated in a constantly lit and noisy intensive care unit.

At three months of age, it was discovered she had a severe case of retrolental fibroplasia. This was the most severe case seen in our institution, and it was felt it would leave her totally blind. It was at this time that Crystal's behavior also became a concern. Since being placed in room air, she was being taken out of her isolette for feeding a few times a day. It was noted that when out, she would become ashen and showed almost no response to human interaction. When she was in her isolette, she lay quietly and was considered by the nursing staff a "good baby". However, her primary nurses found this behavior disturbing.

We felt she was withdrawing, shutting out human interaction. We worried that this was a possibly regressive behavior, a sign of her future dealings with people. We wanted her to find human contact pleasurable, an activity that she would seek out. To reach her, we felt we should put ourselves in her place, to attempt to perceive things as she was. She had spent her entire life in a heat-controlled environment, never experiencing darkness or quiet. When touched, it was nearly always for a procedure, usually a painful one. Due to transportation problems, her parents were only able to visit her every ten days to two weeks. Consequently, the time when she was touched only to be loved, and for no other reason, was extremely rare. Yes, she was sometimes held for feeding, but how did she perceive that procedure?

She would lie in a warm bed, hearing the constant whirling of the isolette motor and muffled room noises. Due to her eye condition, she can see only vague shadows. At feeding time, she'd hear the loud snaps of the isolette doors. She was turned over. The hands were cold, and she would very quickly be lifted to a level about half her height and tossed from tummy to back. Then the hands were gone. Her heart rate was taken; a cold and heavy object was pressed against her chest. Next, an axilla temperature was taken; a hard object would be pressed under her arm. Half her body was elevated into the air as her diapers were changed. She'd then be yanked into a cold and very loud area. "Is that voice yelling at me?" No, Crystal, it's your nurse laughing at a joke. She'd be on gavage feedings: a tube was shoved down her throat; she's have a sudden full feeling and she'd gag as it was yanked back out. She'd be dropped back into her box. There was another loud snap, and then the whirl.

Could this be defined as loving attention? Was it something she would want to re-experience? We thought not. We decided to make some purely pleasant interactions for her. Crystal was getting very competent, but not nurturing, nursing care; she was not being mothered, however. Her primary nurses decided to give her that. It was started very slowly. Every interaction was tailored to be as soft and gentle as possible. We began by doing nothing more than very gently opening her porthole and whispering to her. This we did several times a day. Next we progressed to whispering to her and then after telling her what we were going to do, (we always told her before we did anything to her) gently touched her. After we felt she was accustomed to that, we stroked her. Finally we took her out, making very sure all our movements were slow and controlled. When we did this, our backs were turned to everyone else and all our concentration was on Crystal. If we didn't have time during work for this level of involvement, we stayed after work. Finally, Crystal could tolerate coming out to be held and to eat. We also realized because of her vision impairment that she needed to examine her world in other ways. We would take her hand and make her stroke objects of different shapes and textures, especially our faces, and hair, explaining each one. She also heard much music, singing, music boxes, or radio. They were also kept very soft.

Within two weeks, we noticed a remarkable difference in her behavior. In her isolette, she moved more. She maintained a good color when taken out. Her body was softer, and she smiled in response to pleasurable activity. By three weeks, she stirred whenever either of her primaries entered the room and talked to someone. She was easily soothed by a pat. She began crying, demanding attention. She also began to vocalize. Though it was assumed to be far beyond her developmental capacities, she appeared to reach out when talked to or held and seemed satisfied when she was able to touch your face. On her Brazelton exam, she plotted out completed normal for her gestational age, forty weeks, and was an alert yet easily consoled baby. She appeared to be a happy, developmentally normal child.

FINDING OBJECTS IN SPACE USING SOUND BY CONGENITALLY BLIND INFANTS

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In recent years our understanding of the developmental problems of the congenitally blind infant has been significantly enhanced, in particular, by the work of Selma Fraiberg and her colleagues. For example, Fraiberg (1977) has shown that the characteristic delay in mobility of the blind infant can be attributed to a specific delay in cognitive development. The child must understand that the sound making toy he plays with in his hands is the same object he hears out in space. In other words he must be able to confer substantiality and grasp ability to the sounds he hears. Fraiberg found that the ability to reach out or search for an object on a sound cue alone is linked with the beginnings of the concept of object permanence, that is, in the belief that an object can be "out there" external to himself. Only when the child has acquired this concept will he reach for objects on hearing their sound, or attempt independent locomotion. Further, Fraiberg found that the acquisition of the object permanence concept was dependent on the development of a circuitous developmental path.

Why is it that the attainment of the object concept is so difficult for the blind infant? It would appear that the blind infant has two sources of information concerning objects, sound and touch; sound being particularly valuable as a source of distance information. However, this is not so. Sound is not a useful cue to the position of an object until object permanence is at least partially established. This would appear to be so for sighted infants as well as blind infants.

Blind infants may and do use tactual information to recognize objects, but the development of the object concept using this sensory modality is fraught with dangers. The spatial arrangements between objects and self are not obvious. Indeed, when one releases the object it literally ceases to exist since it can never be experienced as spatially separate from oneself.

The child must make an enormous intellectual leap when there is not possibility of following the independent paths that objects make in the world around one.

Sound is an important source of distance information for adults but apparently is not used as such during infancy. The question is, "Can this be significantly changed in that the blind baby uses sound to perceive and follow objects in space?" It is pertinent therefore to consider the nature of visual spatial awareness and its development in infancy.

The naive observer sees that the space around him is essentially static and objects have stable shape, colour, texture and identity. Trevarthen (1972) has pointed out that space perception only appears to be static because we are able to extract time from our construction. The external reality we see is also the reality we have seen and might see in the future. We construct this picture from sensory information obtained while we act in the space around us. Movement correlated with sensory information is essential to all spatial perception.

The sighted infant develops his spatial awareness by observing the consequences of his actions. Visual exploration in the neonate is prominant and is selective. Between 8 and 12 weeks the sighted infant spends much of his time watching his hands. Von Hofsten (1976) has shown that this activity possibly serves the important function of calibrating the absolute distance in his near space.

On the other hand, the response of infants to sound is markedly different to that shown to light, with the possible exception of the neonatal period. The infant is relatively immobile in the presence of a sound source. This is so even when the sound heard is mother's voice. For many months the infant will respond with smiles and vocalization but not with orientation towards the direction of his mother's voice.

This raises an interesting question. If the infant can follow light energy emitted or reflected by an object, why not the sound energy? There are several possible reasons. Firstly, the sheer quantity of useful visual stimulation relative to the amount of auditory stimulation may be important. Everytime the infant opens his eyes he is able to correlate his activity with visual stimulation. In comparison, the presence of objects emitting or reflecting audible sound is an infrequent event. Secondly, the quality of information provided by light energy is of superior order to that provided by sound since the wave length of sound is too long to permit resolution of small details. In the situation in which the yield of information is poor and the incidence of information relatively low, it is perhaps not surprising that infants tend to ignore it. Remember that the blind infant, like the sighted infant, has little opportunity for correlating his activity with sound information. He will be at least 5 months of age before he can reliably hold sound-making objects which might give him experiences that are necessary for developing spatial concepts. However, delay itself may not be a significant factor. More important may be the development of behaviours during this time which are incompatible with the later development of spatial concepts.

The aim of this study was to aid the blind child to use sound as a source of information about spatial relationships between objects and himself. It was argued that spatial concepts are most easily acquired in an environment in which the child can modulate his sensory input by his actions, and in which sensory input can be calibrated or quantified by the extents, rates, frequencies and successions of his acts.

Method

Subjects: The criterian for selecting subjects was that they be blind from birth, no older than twelve months, and have no other defects. This last condition was impossible to sustain as one child was later diagnosed as having cerebral palsy. Two children were involved in this study.

Procedure: The children were visited in their homes once a week until twelve months old. Frequent but irregular visits were maintained for another year in the case of one child, the other child having left the project. Visits were used to provide sensory experiences or to test the child's responsiveness to sound and record behaviors on videotape.

The specific auditory enrichment was in fact a simple game or class of games played with the baby. In these games sound was always correlated with the child's movements. For example, the infant would be given a rattle and his hand moved in an exaggerated manner and then deliberately held still. Points of change in the action sequence were marked by a conversational cue making it possible for the infant to anticipate the next action.

Tests were used to observe the infants responsiveness to sound. Test objects included several sound making rattles belonging to the child and a small soft toy. When testing, the object was always presented to the child by a sound cue alone in various positions within the child's near space, prior to any tactual contact. The soft, silent object was offered to the child by touching his hand with it. In addition, the child's responsiveness to sound as well as his general behaviour were frequently recorded using a portable video-tape recorder.

Results

It happened that the two infants developed along different paths and responded differently to the specific sensory experiences given to them, so that it is appropriate to report on the two separately.

Case No. 1: C. joined the project when she was 42 weeks of age or 28 weeks when correction is made for her prematurity. Her motor development was good and was well within the range for blind infants (Adelson and Fraiberg, 1974). She showed good manipulative behaviour. Objects were explored tactually as well as orally and were often passed from hand to hand. The floor was her cornucopia; she had developed search strategies for finding objects in general but did not seek a special object. The lightest touch indicated an object's presence and she would immediately grasp it. However, there was neither protest or resistance to the forceful removal or accidental loss of an object. Sound did not indicate the presence of an object. She would only quiet momentarily if there was a sound in her near space and then continue her previous activity. She would neither reach for an object sounded within reach, nor turn towards a sound at her side.

At the end of 12 weeks of participation in the sensory games already described her responsiveness to sound was only minimally increased. An object sounded in her vicinity now elicited fleeting movements of the fingers. Still she did not search for an object given a sound cue even if she had just been holding it. At this time (40 weeks) she was able to make a four-point position, but in this position she would rock, not crawl. In fact rocking developed into a predominant behaviour that interferred with object play. Objects were simply taken to the mouth and sucked and her general passivity was even extended towards her mother. This serious direction to C's. development was reversed by enriching the social and environmental experiences available to her. It was reported by her mother that C. began crawling at 14 months of age, again corrected for her prematurity.

Case No. 2: A. joined the project when he was 35 weeks of age of 19 weeks if we adjust his age for prematurity. He appeared to be very immature, with one notable exception. He was socially very responsive, smiling whenever his mother spoke to him. However, motor development was very delayed. He had no head control. His hands were more-or-less permanently fisted and held at his chest. The rooting reflex was prominant. Shortly after A. joined the project I learned that cerebral palsy was suspected.

When work commenced with A., not only was he unable to make a directional response to sound, but neither was he able to make any response to a tactile stimulus on the hand. Nor could he hold an object that was placed in his hands. It was therefore necessary, when playing our sensory game, to hold the small rattle in his hand. Despite these difficulties however, A. made dramatic progress. After some 20 minutes of such play the bell was rung within the child's reaching distance. A. opened his hand in a grasping action for a moment. In the following weeks A. would respond to sound making objects, prior to contact, with an extended reach and grasping activity. In the early weeks he would on occasion make contact with his seat while attempting a reach. However when the inappropriateness of the response was evident the reach would be reattempted. It became evident that he preferred to use his left hand to reach for objects and showed superior use of his left hand. However when the toy was offered on his right, he used his right hand to obtain it and then pass it to his left hand. A. was locating the direction of the sound and responding appropriately to its position. Five weeks after commencing work with A. he was able to take an object that was offered to him by tapping his fingers with it. He had developed a tactual representation of an object.

At 34 weeks, in addition to reaching for objects using sound only to indicate their position, A. gave evidence of further intellectual development. He protested and resisted the removal of an object, on occasion reaching out for the lost object. Secondly, he would reliably take some objects using sound as the only cue, and just reliably not take others. He was showing recognition and selection of objects. Thirdly, if placed in prone he would raise his head and shoulders and with some thrusting movements of his legs he would slowly drag himself forward. The meaning of this activity is undoubtedly ambiguous, however in later weeks' as his ability to move in prone increased he was able to demonstrate that his crawling was goal directed. Fourthly, A. never engaged in stereotyped movements, always using his very limited physical abilities to explore his environment. His good intellectual development was further indicated by his ability to play "peek-a-boo" and "give-and-take" at 12 months of age (calculated developmentally). Objects no longer existed "out there" to be searched for or discovered when sounded, but they could also be in the possession of another person and exchanged.

Discussion

The perception of space is achieved by moving sensory receptors in space. In this study an attempt was made to provide the blind infant with space perception using sound information. In this case however, the sound source was being moved by the listener rather than the receptor being moved. Can this means of achieving a correlation between sensory information and movement be effective in providing an experience of space? The answer must be a comparison of the progress of two infants who were given this specific auditory experience. The differences between them are as informative as they are striking.

The most notable difference between these two children was their responsiveness to sound. A. learned to reach for an object or sound cue alone, and reliably did so, when he was only 21 weeks of age. C. never achieved this skill while she remained in the programme.

A second significant difference concerned their awareness of objects. C. used random search to find objects in general on the floor around her within arm reach, but there was no evidence that she understood that objects continued to exist when she was not in contact with them. Fraiberg (1977) found that the normal development of the blind infant hinges on the problem of the object concept. The infant cannot confer substantiality to a sound source until she has acquired the object concept. This developmental path is quite different to that of the normal child for whom, as Bower (1974) has shown, is able to confer substantiality to visual information, probably from birth and certainly without resort to the object permanence concept. In fact, the act of reaching for a object, which can be observed in the neonatal period (eg. Bower 1974, Trevarthen 1974), demonstrates functional space perception. The newborn infant will also turn "to see" a sound source (Field, Muir, Pilon, Sinclair and Dodwell, 1980; Wertheimer, 1961). Visual and auditory specification of objects are therefore mapped into a common space. A. could reach for an object on sound cue alone demonstrating the substantiality of sound sources for him and the placement of such objects onto a spatial map. Was this the crucial difference between these two infants? A. had available distance information concerning objects, their existance and movement. His selective behaviour in response to sound alone suggests that he had mapped onto this general information, specific information concerning the special properties of individual objects. His behaviors in relation to objects more closely resembled that of sighted infants than that of blind infants.

A third difference concerned mobility. C. at 10 months was posturally ready for creeping but she did not creep. A., on the other hand, made enormous efforts to crawl from 8 months of age. While both achieved unequivocal goal-directed crawling or creeping at 14 months of age the causes of the delay were quite different. C. crawled when she was intellectually able to do so. A. could only demonstrate the goal-directedness of his crawling when he could move sufficiently fast to satisfy the experimenter's criterion for goal-directed creeping or crawling. The observed differences in the intention to move independently is in accord with the findings of Adelson and Fraiberg (1974) who reported that the prerequisite of independent mobility is being able to reach for an object on sound cue alone.

The fourth difference concerns the ability to use tactual information. C. had good manual skills before commencing this programme and tactual information certainly specified the existance of objects. A., on the other hand, lacked a tactual scheme for objects at the commencement of the programme and was only able to take an object using a touch cue after he was able to take an object using a sound cue alone. Is this difference the genesis of their divergent developmental paths? Is it possible that, in the absense of spatial schemes, the development of tactual schemes are undesirable because they pre-empt the formation of object relations based on distance information.

Reference to normal development may be a useful approach to an understanding of development in the blind infant. The normal newborn infant has many opportunities to experience his environment with distance receptors, particularly with his eyes, and by the time he is 7 or 8 weeks of age he can demonstrate existance constancy (Bower, 1967). This is long before he has useful tactual experience. The normal course of development is the formation of a visual-auditory spatial map, with emphasis on the visual component, onto which tactual information is only later mapped. Tactual information is normally secondary, not primary. The observations of this study suggest that the order in which sensory experience occurs may be important for development. If this is so then blind infants need an intervention program when they are very young, preferably before three months of age and before tactual schemes have developed.

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FACILITATING GROSS MOTOR DEVELOPMENT IN BLIND INFANTS AND CHILDREN

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The gross motor development of young blind children has been an area of concern for some time. Norris, Spaulding and Brodie (1957) contributed information regarding their retrolental fibroplasia population. Adelson and Fraiberg (1974) contrasted their data gathered from ten normal blind children with that obtained by Norris, Spaulding and Brodie with the norms gathered from a normally seeing population. The blind children from both studies were delayed in their motor development.

Unfortunately, these data from a small number of children have had a significant impact upon the field of blindness. The data have been taken as the norm for all blind children. In fact, there is frequent reference to the fact that blind children have different rates of development, and that blind children, as they develop, should be compared with the data obtained from the Fraiberg study rather than with children who have vision. This type of thinking can lead to a self-fulfilling prophecy. The children have slower rates of development because they are not expected to develop faster. Early intervention with no expectation or programming in this area will contribute nothing to negate the idea.

There are blind infants that meet their motor milestones within the variances expected of seeing children. Why are some blind children able to do this while others lag far behind?

Babies come into the world with newborn reflexes. While some of the reflexes have little significance in our present society, the presence or absence of others can be used as prognosticators of future ambulation (Hoskins and Squires, 1973). As long ago as 1938, Gesell stated that children who still possessed the tonic neck reflex would not walk (Barsch, 1968). Molnar and Gordan (1976) have refined that information by stating that the presence of the assymetric tonic neck reflex after 24 months prevents ambulation. Bleck (1975), working on a similar assumption, has developed an instrument found to be 94.5% effective in predicting walking in cerebral palsied children. While this information is important to us in programming for blind children with cerebral palsy, what about the normal blind child. Is the presence of abnormal reflexes responsible for delayed motor attainment?

Adelson and Fraiberg (1976) noted that their population of ten blind children with no other handicaps showed neuromusculature maturation in the control of the head and trunk within the normal range of sighted children. Thus, reflex behavior appeared to follow normal patterns of development and was not responsible for delayed motor movement.

The visual feedback that children with vision receive from their environment does contribute to the manner in which blind children position themselves in space. Cues are lacking and the children have to learn other means for feedback from the environment. One of these means is the substitution of auditory for visual stimulation. The time delay for these to occur has been given as a reason for delayed motor development. However, when working with blind infants, it is not necessary to wait for the normal development of ear-hand coordination to intervene and facilitate motor development. Other intervention can be used to stimulate very early motor movement.

Blindness in babies is often the result of very serious medical conditions. The infants are often placed on their backs and incubated for easier breathing. The babies are left supine for periods of time and learn to prefer the back-lying position. That position as well as the lack of visual stimulation from the environment prevents the children from attaining normal cephalo-caudal maturation within the average time frame. In addition, a prolonged supine position prevents the children from developing normal tone, another necessary prerequisite for normal motor movement.

Ammon and Etzel (1977) have presented a model of the various systems that contribute to reaching, prehension and related hand skills. They state that placing the children in a prone position aids in the development of the prerequisites leading to these skills. Pearson and Williams (1972) discuss the importance of placing children on their stomachs to develop the symmetric tonic reflex with subsequent body extension, a necessary prerequisite skill for reaching behavior.

Bobath also notes the importance of extension while in the prone position. Bobath (1971, p. 6) lists abduction-flexion of both upper and lower limbs. Among the "most important stages of motor development". He also notes the importance of weight transfer to one arm and rotation of shoulders and spine while in the prone position. Finnie (1975) also supports placing children on their stomachs, noting that using the arms for support while in the prone position leads to placing weight on one arm and reaching out with the other arm, first forward and later behind.

While reaching out is a developmental milestone that takes place in normally developing children by five months of age, it is something that blind children do not do until the last quarter of the first year, when the children are able to use the auditory modality as a substitute for the visual, according to Adelson and Fraiberg (1976). These same authors, while failing to note its significance, also state that their subjects did not like to be placed in the prone position. The single fact that their blind babies resisted being placed on their stomachs and therefore were not put into this position may have contributed more than any other single factor in creating their motor delay.

Molnar (1974) substantiates the impact that such factors can contribute to motor development through a study with retarded children taught prerequisite postural adjustment skills. Targeted behavior occurred within a month of teaching these skills. The children in Molnar's study evidenced no neuromuscular disabilities, just as Adelson and Fraiberg note in their investigation of blind children. Adelson and Fraiberg report crawling began a few days after their babies learned to reach. Because crawling requires the motor prerequisites involved in reaching, the authors verify the fact that teaching these prerequisites can lead to attainment of motor skills.

Because abnormal postural reflex activity is seldom present in the young infant (Campbell, 1974), we must begin very early to intervene with the infant identified as blind or suspected of visual handicaps (Hart, 1978). Among the activities that I have found effective in facilitating motor development are the following.

Healthy babies need to be placed on their stomachs. Although they may initially resist this position, they later learn to prefer it. Reinforcement of the prone position can be accomplished by patting the newborn on the back. As the infant matures in the ensuing weeks, placement of a warm hairblower above the head or small bells that ring when the head is raised can encourage head movement that will help build head balance and shoulder muscles. Talking to the baby and stroking the baby under the chin can also aid this activity.

Once the baby gains head control, holding the child on the lap while supporting the body, first up high in the shoulder area and then lowering the support to the hip area, also can contribute to the prerequisite for reaching, creeping and hand development. Letting the child manipulate a favorite object and then removing the object from the hands and placing the object, first where it can physically be felt against the skin and then removing it further and further from the body while at the same time verbally directing the child to the object can also aid in searching and reaching behavior.

There are many ways to encourage motor development in the young blind child. At the beginning stages it is difficult to determine the amount of residual vision that might be present. Certainly the use of objects that facilitate the use of vision should be used while developing motor skills.

Young blind children do not develop normal motoric skills without early and well-planned intervention. Such intervention should take place as soon as possible after birth, within the neonatal unit if it is possible. To wait for delayed development to emerge is to subject the children to a life of abnormal muscle movement. Such delay can result in the self-fulfilling prophecy that blind babies are delayed in the area of gross motor development.

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MOTOR DEVELOPMENT IN THE VISUALLY DISABLED CHILD: IDENTIFICATION OF CONSTRAINTS AND PRINCIPLES OF REMEDIATION

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Vision profoundly influences early development within all parallels. It brings the world to life and a baby alive to the world and to his potential. The newborn baby is an inexperienced and untutored bundle of potential, sustained temporarily by some life supporting reflex mechanisms and maternal care. He has everything to learn about himself and about the world into which he has been born.

Sight and sound span space, but only sight presents the world in a three dimensional, concrete perspective which remains to be looked at again. Sounds come and are gone; touch does not span space and therefore each is inferior to sight as an initial learning medium. "Vitality" is the prerequisite of progress along any parallel of development, and its generation should be the focus of early guidance for visually handicapped babies.

Joan Reynell (1978) observes that, from the end of the first year, sighted children streak ahead of their visually handicapped peers along each of the five avenues of intellectual development explored by the Reynell-Zinkin Developmental Scales for Visually Handicapped Children. Unfortunately, vision for learning accounts for much of this delay, but motor incompetence and a low level of sensory integration also have major impact. Past studies suggest that both are often deficient in visually handicapped babies by the end of the first year (Adelson and Fraiberg, 1974; Parmalee, Fiske, and Wright, 1959; Fraiberg, 1977). Our study of more than a hundred babies and young children at the developmental vision clinic since 1977 confirms these trends. The majority have been followed up regularly, and the theories put forward are based on this multi-disciplinary experience.

Severely impaired vision inhibits motor development directly, as well as indirectly, through superficially unrelated aspects of development such as body image, drive, and sound localisation. One way in which the constraints in motor development can be identified is to note which of the well recognised behaviours are absent in the visually handicapped; not just to record the omissions, but to go back to study again the behaviour in the sighted infant with the intention of delineating the contributions of the behaviour to development. For example, finger play noted in sighted babies between ten and twelve weeks is rarely seen in blind babies. It is generally regarded simply as a maturational motor behaviour which will later enable the baby to bring objects to the midline for inspection. However, if we study this behaviour again in the sighted baby, we see that, during spontaneous movement of the arm, the hand passes through the visual field at a distance (10 - 12 inches) at which objects are in full focus. Thus the baby is alerted through his vision and skills. The hand is caught and held in full focus. Does the behaviour have a critical role in motor development? If we look again at the sighted sequence, we see that at the moment when gaze and hand first interlock, an era of perceptual learning is beginning; i.e., the formation of body image.

This leads on to a gradual realisation of the potential of the hand as a prehensile organ at the owner's command. Without this interlock of eye and hand, the spontaneous movements of the blind infant's arm go unrewarded and decrease after three months. This is surely one of the more important reasons for the posture of blind infants over four months of age, so graphically described by Selma Fraiberg as "stationed at the shoulder aimlessly opening and closing" (1977).

Appreciation of the contribution made to the development of infant behaviours is one of the major hurdles en route to our goal of successful intervention. The rest can be surmounted with a little ingenuity, harnessed to a sound understanding of development, and insight into the ways in which mothers and babies like to interact and enjoy each other. Intervention to promote development of body image of the hands could usefully include: -

i. mother taking the arms and kissing the hands
ii. playing clap hands
iii. kissing his tummy or cheeks and then taking his hands to the same parts.

Our observations of visually handicapped babies and toddlers have led us to identify the following categories of constraint on motor development.

DRIVE:

The quality of personality that urges exploration, participation, and mastery must be awakened before progress along any parallel of development, including motor, can be made. Mary Sheridan called this quality "drive". The first requirement is:

i. A happy, communicating baby. An infant looks back into his mother's eyes within hours of his birth. Ronnie MacKeith said, "This is the moment when a mother falls in love with her baby." The mother of a blind infant is deprived of this moment of bonding and may become depressed. This, together with the deep sense of shock common in parents of visually handicapped infants, reduces their ability to interact with their baby.
ii. The presentation of the world in an enticing three dimensional perspective to be explored "because it is there". For the blind baby the world is at risk of remaining a meaningless void.
iii. The urge to practice movements so as to perfect them. Sighted babies spend many hours in this activity at each stage of motor development. Such activity is uncommon in blind babies.

Parents can be helped by reassurance that their baby has the same inherent store of emotions as any other baby, which can be awakened by physical and vocal contact. The baby's stillness and lack of facial expression should not be mistaken for disinterest.

BODY IMAGE:

The importance of vision in the development of a body image of arm and hand and of its functional potential have already been discussed. A parallel pattern is followed at 4½ months when the normal baby catches sight of his feet and reaches for them, thus initiating a sequence towards sitting and mobility. Intervention will also follow parallel lines.

OPPORTUNITY

The opportunity to feel movement in space and change in posture, as distinct from drive, which comes from within, is an everyday experience of the normal baby. Father is particularly relevant in this context. His gentle rough-and-tumble play provides the baby's motor system's self-monitoring circuits (proprioceptive and vestibular) with experience.

The father of the blind baby tends to withold this kind of play because of his innate anxiety that he might frighten the child, a fear that is all too often reinforced by the protective reactions of female relatives.

In our experience most blind babies enjoy father's play in the same way as the sighted child. In fact, for many it is their greatest fun. Reassurance on this point can give back to the father his joy in parenthood, whilst providing the baby's motor feed-back circuits with the priming they need.

Blind babies tend to get less floor experience than their sighted peers. This comes not only from the heightened protective instincts of the parents, but because, lacking the forewarning that vision provides, the blind baby may become easily frightened and upset by sudden movements of others in the room. Floor experience is valuable because:

1. It provides a good platform for practising movement.
2. It develops an awareness of a solid base in the direction of the pull of gravity, which is essential for the development of saving reactions.
3. It helps to build up concepts of the concrete environment and, hence, a sense of security which encourages mobility.

It can be helpful to suggest a practical way of keeping bustle at a distance and to advise parents to stay close to the child until he becomes used to the new environment.

CONCEPTS:

Selma Fraiberg (1977) and Joan Reynell (1978) have described two groups of early concepts which encourage motor progress:

1. Permanence of objects:
   A baby has to realise that an object is present before he is motivated to reach for it. This concept is learnt largely through vision. Sound is not a substitute for vision because it does not provide the child with a tangible link to its source. Nevertheless, until the baby has acquired this concept, he will not be motivated to reach or move.

2. It may be helpful at an early stage to provide this physical link with a sound source, by suggesting that the mother takes the baby's hands to her face while she leans over and talks to him. In this way she will help to establish the earliest concept of permanence, that of people, and the awareness that sound is indicative of presence.
   Understanding the floor as a concrete base. This has already been mentioned under "Opportunities".

MONITORING FUNCTIONS AND TUTORING OF MOTOR FEED-BACK CIRCUITS:

1. Motor feed-back circuits:

Selma Fraiberg (1977) states that the achievement of static postures, e.g., sitting and standing, is only slightly delayed in visually handicapped children. Our own data suggests slightly more delay. The most striking feature is the gap between the achievement of the static posture, the making of active adjustments and/or the onset of mobility. Some of these children show delayed emergence of trunkal tilt reactions and slowness in their becoming fully operative; some also show similar delay and slowness in the acquisition of saving reactions (propping in sitting, staggering in standing and forward parachute). The significance of these reactions to the development of movement in the normal child is well described by Sophie Levitt (1977) in "Treatment of Cerebral Palsy and Motor Delay". In the absence of these essential reactions to changes in posture and movement in space, it is hardly surprising that static postures fail to become active or mobile; but whey do these reactions, attributed to neurological maturation in the past, fail to emerge in visually handicapped children with normal neuromotor systems? The answer must lie in the roles of vision.

- i. Vision certainly assists neurological maturation by promoting experience of movement of the type already described under priming of proprioceptive and vestibular circuits.
- ii. Vision also monitors changes in posture and movement in space. The mistiming and exaggeration of tilt and saving reactions, and the hesitant step of the blindfolded adult, provides evidence that these reactions rely very considerably on visual monitoring.

iii. Vision probably tutors proprioceptive and vestibular circuits in the baby in the same way as vision tutors sound localisation skills (Sonksen, 1979).

iv. Vision will also act through all the channels already described, which limit incentive to move and confidence in movement.

The guidance of a therapist experienced in postural training and saving reactions in children with motor delay and disorder is valuable for the visually handicapped babies in whom these reactions do not appear spontaneously. It is important for the therapist to be informed about the amount of residual vision, the existing level of fear, and the child's present level of understanding of the concrete world before she starts treatment or gives the parents developmental guidance.

2. Monitoring of changes in the external environment:

Vision spans space and time, whereas touch only alerts when physical contact is made, so vision is the more effective monitor of changes which occur in the environment and require and active response. Blind children are thus less well equipped to cope with a changing environment.

3. Monitoring the effect of movement on the environment:

The visually handicapped child, for the same reason, is at a disadvantage in perfecting fine and gross motor skills; e.g., threading a needle, or running upstairs. Vision emerges as the key monitor for learning to perform motor skills.

FEAR:

When faced with a new motor experience, all children experience fear. This reflects uncertainty of their motor competence. It is generally short-lived.

The cerebral palsied child may have a stronger and more prolonged fear of moving secondary to the defect in his motor system, which reduces competence. In some cases this is due to damaged postural mechanisms.

The visually handicapped child is prone to a wider range of fears. One type may similarly arise from lack of confidence in his postural control. Another strong fear that is likely to arise before he has established concepts of his concrete environment is venturing into the void; even then this fear may never leave him.

Discussion with parents at an early interview as to the ways in which fears may form is often preventative and at least reduces their growth. It can be useful to suggest to parents that they develop a simple way of forewarning the baby of impending movement: e.g., before lifing him off the floor, gently touching the back of his hand and saying, "Up you come".

Some, but not all of these constraints to motor development, will be operating in any visually handicapped child. If developmental guidance is to be comprehensive and effective:

1. The level of motor and manipulative development must be assessed.
2. The constraints that are operating on motor progress as a result of poor vision must be determined.
3. The constraints on motor development as a result of other disabilities must be identified.
4. The practicality of incorporating guidance with the child's daily living programme in the context of his family circumstances needs to be evaluated.

Our ambition is to equip the visually handicapped one-year-old with a more competent motor system and better integrated sensory mechanisms with which to step into the era of the second year; in this way to contribute towards a narrowing of the gap in intellectual progress so strikingly demonstrated by Joan Reynell (1978).

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FROM SOUND TO SENSE: SEMANTIC DEVELOPMENT IN THE LANGUAGE OF YOUNG BLIND CHILDREN

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> "Take care of the sense, and the sounds
> will take care of themselves."
> - The Duchess in ALICE IN WONDERLAND

Semantic development is the process by which the meaning of relationships between words and the persons, events, objects and ideas represented in language are acquired. Understanding language involves the comprehension of meaning from the way words are sequenced in sentences and a knowledge of the relationships between objects and energies in the real world (Lenneberg, 1967).

The purpose of this paper is to describe the semantic development in the language of young children and to suggest activities and experiences that will enhance semantic development in young blind and visually handicapped children. The effects of blindness or severe visual impairment on language development are not well understood. There are few in-depth research studies and conclusions that have been drawn from too few studies. Some writers have noted delays and differences in some aspects of language development (Fraiberg, 1973). Others have noted that blind children appear to have no special difficulty (Lenneberg, 1973). Whether blindness interferes with the normal course of semantic development seems to depend on variables that are separate from the language learning process itself. For example, the amount of talk that is directed at the child, familial expectations, and the quality of adult-child interaction and the presence of additional handicaps are potent factors contributing to delays and differences in language development. The quality of adult-child interaction appears to be the single most important influence on the child's language development (Wells, 1981)

Comprehensive studies of early language development clearly demonstrate that language is acquired in the context of social interaction. Adults communicate with infants from birth onwards, and this early communication is expressed in a variety of mutually satisfying reciprocal behaviors (Stern, 1977), and Clarke-Stewart, 1973). If blind severely visually impaired infants and young children can be provided with a variety of language experiences, the types of communication delays to which they seem prone may be prevented. The strategies by which blind children come to know and use language are the same as those sighted children employ.

The Strategies of Language Acquisition

Bower (1977) noted that there are inborn strategies and those that depend upon experience. The inborn strategies depend upon the growth of nerve pathways that bring language information to the brain. These pathways grow rapidly in the first year and are the biological basis of the perceptual system serving specific language functions. The growth of the perceptual system depends on the quality and quantity of stimulus it receives from the environment (Bower, 1977). The brain recognizes and builds cognitive structures from patterns of stimuli. The earliest language patterns perceived by infants are the sound contours of the language they hear. These are the patterns of pitch, tone and stress (Stern, 1977). Adults have special ways of speaking to infants and young children that help them focus attention on these sound contours. They exaggerate the contours of speech by the way they raise and lower their voices, prolong syllables, and slow down their rate of speaking. The fact that speech is also associated with being held and cuddled, fed and soothed, ties feelings of emotional well-being to acts of speech.

The first sounds the infant makes are cries and gurgles. Mothers quickly learn to discriminate happy from unhappy sounds, angry cries from stress cries. The ways in which mothers respond to their cries and gurgles teaches infants that vocal sounds are signals. The five-month-old baby is able to reproduce the intonation patterns of the language he hears. His babbling is conforming to the sound patterns of his parents' language. Not only has the five-month-old baby developed the ability to phrase his vocalizations, but he is beginning to shift his attention from the contours of speech to the individual segments of speech sounds (phonemes or the vowels, consonants and dipthongs).

As he learns to produce the individual speech sounds, the baby learns that when he moves his lips and tongue in a certain way, he can produce the same sound over and over again. As the child becomes more skillful in sound production, he begins to associate certain sounds with the people, objects, and events in his environment. He is now attending to the semantic as well as the sound qualities of language.

The six-month-old infant is skillful in using his ability to vocalize to engage his mother in play. He alternates taking turns with simultaneous vocalization. These are very sociable activities and act to reinforce the reciprocity of speech behavior.

The child's first words indicate those persons and objects of particular interest to him, and they appear at the end of the first year, after the motor system for speech has become coordinated with breath control and the movements of lips and tongue.

Development of Vocabulary and Syntax

At the age of one year, the child knows less than ten words; at two years, he knows between two and three hundred words; and by the end of his third year, his word knowledge is in the thousands. Between 18 months and three years, the child moves quickly through several stages, gathering linguistic information about the words he uses and the ways in which he can use them. He seems to be able to draw causal links by several means, using social, physical, and even whimsical associations (Klein, 1979). To be sure, the child imitates the speech of the adults around him and directs his efforts towards learning the language he hears. But in so doing, he sometimes reaches and extends beyond the border of word meanings and overextends the meanings he knows. Between two and three years of age, children show a strong sensitivity to language, to its inflections and morphology, and is able to invent words to express the most precise meanings (Chukovsky, 1968).

Substantive words command the child's attention first and he begins to put them together in ways that express his understanding of the semantic relationships that underlie them. These are the relationships that denote attributes of possession, location, agent-action, action-object. The phrases "Daddy shoe", "here truck", "Mommy go", "drink milk" demonstrate these relations (Bloom, 1973).

Children learning language give special attention to the ordering of words within a sentence and then to the inflections, such as word endings. The achievement of mastery of grammatical forms is characterized by its orderliness: the simplest and most obvious principles are learned before the more complex.

The strategies children employ in gaining control over word meaning reveal their capacity for absorbing more and more information and expanding and enriching their knowledge of words. The child does not build his vocabulary one word at a time, nor does he acquire the full meaning all at once (Crystal, 1976). He alternates between overextending the meaning of words and overrestricting them. The use of overextension reveals the manner in which meaning is discerned. Those semantic features which are most general are the first acquired. The mistakes children make as they learn which words go together reveal this process. The young child will often refer to "a loaf of cake", or "drive a bicycle" (Crystal, p. 53). Words are learned as categories of experience: only in the case of proper names is there a one-to-one correspondence between a word and the object it represents. Words that refer to feelings, non-existent objects, or signal intention, desire, need, or belief have no tangible counterpart in the real world. Chukovsky (1968) noted that children from the age of three onwards are fascinated by opposites. The meaning of "big" is learned together with the meaning of "little".

The development of language greatly increases the opportunities of the blind child to interact with his environment. His language enriches the meaning of his experience and contributes to his understanding of the real world. It is within the reciprocity of social interaction that mother and baby come to agreement about the "meanings" implicit in vocal interactions. As Cathy Urwin (1979) has observed, it is the fact that the blind child may experience constraints in establishing social relations that interferes with the development of the communicative function of language. Active exploration of the environment is tied to his feelings of security and the ways in which he is being encouraged to explore. The interest the blind child develops in his environment is motivated by the quality of social interaction he experiences.

Between the ages of two and five, children are faced with the task of gaining control over language and developing it into an efficient tool of communication, social interaction, information gathering, and an instrument of imagination and thought. The more command a child gains over his language, the more his language becomes a way of coping, exploring, and learning (Halliday, 1975).

The notion that blind children do not form realistic notions of the objects in their environment has led to an emphasis on experiential learning. But experience with objects is only one aspect of semantic development. It is also important that the blind child be encouraged to explore his language and its sound patterns in his own way. The observation that blind children enjoy playing with sounds should not lead to discouraging these activities. Rather, they should be encouraged together with play with objects and play with people.

Language Play and Language Competence

Language play is one of the major strategies available to children as they explore the substance and structure of language. Play refers to those activities which are enjoyed for themselves; they are an enjoyment of means rather than of ends (Garvey, 1977). Play is spontaneous and voluntary; it is always freely chosen by the player. Yet play always has a systematic relationship to what is not play (Garvey, 1977). The effect of play with language is to help the child integrate and elaborate his understanding of the forms and content of language (Cazden, 1976). In utilitarian contexts, the child's attention is focused on the ends or purposes of language - its efficiency as a form of communication. Language play complements and enriches the child's knowledge of the forms of language and thereby deepens his understanding of its purposes.

All aspects of language are materials for play. Syllable shapes and stress patterns are the material of play for very young children. Babbling may be considered an early form of play. Between two and three years. of age, the child's speech play centers on the sounds and rhythms of language. Children create poetry out of pure sound, and the intense interest in the sounds of speech probably account for the great appeal of rhymes. "Now it's done un, un, done un, un, un," is a typical chant of a two-year-old child (Garvey, p. 62). The fascination with speech sounds persists long after vocabulary and syntax are acquired. Much of the child's play with speech sounds occurs as a private activity. But children also practice with question forms, noun and verb substitutions, and pronouns in "play" talk (Weir, 1976).

Word meaning is also a rich resource for play. This is expressed in "made up" words and the delight of nonsense verse (Garvey, 1977).

The Sense of Nonsense

There is sense in nonsense. Nonsense rhymes and verse are characteristic of the humour of children between the ages of three and five. This type of word play emerges precisely at the time the child becomes aware of meanings and the nature of relationships of things in the real world. The children's verses that have survived for centuries are those that conform to the strategies that children use to separate the real from the unreal. Nonsense strengthens the child's sense of the real. But if the child does not know the real order of things, he will not engage in play which reverses that order. For example, if he does not know that there is only ice in cold weather, he will not comprehend the verse, "The child skated on the ice, on a hot summer's day" (Chukovsky, p. 600). Juxtaposition is used to reverse the order of things, a technique that is firmly established in many favorite children's rhymes. A good example is the following:

> Dilly Dilly Piccalilly,
> Tell me something very silly.
> There was a chap whose name was Bert,
> He ate the buttons off his shirt.
>
> Upstairs, downstairs,
> Roundabout,
> Backwards, forwards, inside out!
>
> "The cook rode in a rickety van, harnessed to a frying pan."

These rhymes are a source of humour precisely because the child understands the true order of things (Chukovsky, 1976).

Another widely used strategy is to endow an object with the function of another. "I brush my teeth with my comb, and comb my hair with my brush" (Chukovsky, 1976).

The more aware the child of the correct relationship of things, the more comical its violation appears (Chukovsky, 1968). Nonsense gives the child a handle on the logical ordering of things.

The use of the term "play" to describe the child's excursions into the pleasures of language for its own sake is perhaps misleading. Just as play with objects enables the child to understand the functions and properties of objects, so play with language permits the mastery of the linguistic system. In the act of playing with language forms, the child learns to take an objective view of sound patterns, grammatic forms, and words. He becomes consciously aware of the properties of language. This is meta-linguistic awareness which is a special kind of language performance with its own kinds of cognitive demands (Cazden, 1976). Meta-linguistic awareness has been closely linked with success in reading and writing (Cazden, 1976).

The child's ability to play with words, to find the hidden meanings in riddles, to be aware that one word can mean more than one thing, has also been associated with cognitive development. Blind children are capable of finding hidden meaning and enjoy riddles and jokes at the same ages as sighted children (Rogow, 1981). The capacity of the blind child to use his language needs to be encouraged and enhanced in all possible ways. His language is a major source of enjoyment, learning and achievement. Adults who become willing partners in play with young blind children will enhance their semantic development and enable them to link their interest in language with their experience.

An overly utilitarian approach to the language development of blind children which places undue stress on the naming of objects can be restrictive and limiting. Language play is intended as an expression of self and personal meaning and is engaged in for its own sake. We must be careful not to overstructure or rob the play of its spontaneity. Encouragement of the children's play takes the form of participating with the child. We need to be concerned with how we speak and what we say. If we can use rhyme and pleasing sounds, we will enrich and delight and kindle the child's own interest in forming links between language and experience. Concern with helping the child separate the real from the unreal should not mislead us into avoiding the whimsical and the fanciful. We need not be afraid of "silly" talk. When we encourage his own expression of his perceptions and experience, we strengthen the blind child's ability to make his own sense and trust his own judgements. Language play is an important strategy of learning language and should be totally and freely available to blind children.

Repetitive, rhythmic vocalizations are associated with pleasurable states in the pre-linguistic child. Young blind babies will respond happily to all forms of sound games, including singing, chanting, rhyming, crooning, popping noises and tongue clicking. In the first year the child needs to become familiar with hearing and producing the sounds of speech. Rhymes, songs, verse, and stories should become part of his daily language fare. Sounds and rhythms can be used to enhance all activities. From the age of two onwards, stories, word games and poetry, will help to shape a keen interest in words and meanings. The language activities of the first years of life will build a strong foundation for semantic development in blind children.

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LANGUAGE IN UNSIGHTED CHILDREN

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Verbal language

Various authors have paid special attention to child language development (Carrol, J.B., 1966; Mc Carthy, D., 1966; Piaget, J., 1955; Vigotsky, L.S., 1966). Scholars of the blind have also shown interest in the problem of language. As with other types of sensory handicaps, the inability to see often has a negative effect on the child's language. Fraiberg's studies (1968) noted that, during the initial stages of the development of verbalisation, there are very few significant differences between sighted and unsighted children. Before verbalisation is actually achieved, children use a sort of Piagetian 'egocentric language' in which they formulate sounds and syllables mainly based on oral gratification. At the beginning of this stage, words are also play things, and only gradually do they acquire usefulness as a means of communication. However, it would appear that the oral gratification stage is more prolonged in unsighted children.

Whilst the sighted child uses words to name people and objects charged with libidinal significance for him/her, the unsighted child ought to begin verbalisation by naming sensation experienced in his/her body or through touch and sound. This is not, however, the case as he/she is not offered any help. Adults do not offer the unsighted child any mechanism for identification as, being able to see themselves, they often fail to understand the unsighted child's real needs.

Only later do more noticeable differences between sighted and unsighted children emerge. Whilst sighted children learn to speak by relating to, communicating with, and identifying their first love objects, for visually handicapped children language acquisition is mainly an intellectual activity equally difficult as the other kinds of adaptation they have to make to the surrounding sighted world. The desire to experience the affective world, above their parent's affection, and the desire to communicate is the driving force behind the learning process that has to be mastered in order to reach mutual comprehension.

I believe that the traditional works on childhood have an important contribution to make in developing models on language acquisition in pre-school unsighted children. As Bloss (1974) states, familiarity with one or more stories leads to a considerable amount of language acquisition. Indeed, whilst everyday language is characterized by syntactically incomplete fragments, a well-read story, which evokes different atmospheres, describes people and combines cause and effect, provides more complete, coherent language. The role played by children's literature can also be clearly seen in the various mass-media, such as TV and radio.

Much has been written about verbalism in the unsighted, that is the use of words to represent muddled or incorrect concepts. For example, in her study on boys and girls from six to fourteen who had been unsighted from birth, Harley (1963) revealed that:

a. There is a strong negative correlation between chronological age and verbalism; between experience and verbalism; and between I.Q. and verbalism;

b. There is not strong negative correlation between personal adaptation and verbalism;

c. There is no strong negative correlation between chronological age, I.Q., experience, personal adaptation, and visually oriented verbalism. This latter phenomenon takes place when a child uses one or more words that are related to colour or brightness to define a given object.

In a closed-ended questionnaire put to sighted and unsighted elementary school children at the Institute for the Blind in Milan, I found that, overall, unsighted children preferred visual type answers (1978).

Demott (1972), in his study of sighted and unsighted subjects aged between six years and five months and nineteen years and seven months, using the semantic differential, concluded that there were no significant differences between the two samples. Meanings would appear to be derived from within the language. In other words, younger unsighted children, like their sighted peers, learn the use and meaning of many words from context and their use within the language system.

I would like now to turn to the research part of this paper which deals with written language in young children.

Materials and method

The survey was conducted on a sample of ten unsighted children, with no other physical handicaps, aged between six years and two months and seven years and three months, attending the first two elementary classes of a government school which was also attended by sighted children. The control group consisted of ten sighted children, without physical handicaps, attending the same classes as the unsighted group. The aim of the study was to investigate if there were any significant differences in the written language of the two groups.

Interview technique

The children in the study were asked to write a few sentences on the subject, 'My games'. The children were allowed the time their teacher normally gave them for such tasks. No limit was put on the number of sentences to be written, although only the first three were taken into consideration during the subsequent analysis of the data.

Following Lawton's (1968) postulate that the level of subordination (that is, the number of dependent propositions) in written language is generally an index of the writer's maturity, Loban's weighted index was calculated separately for each sighted and unsighted child.

Analysis of the results

The analysis of the data reveals the following picture:

Respondent	Mean value of answers
unsighted group	0.141
sighted group	0.316

Student's "t" test was applied to measure the significance level of the difference between the mean scores of the two independent samples, where sight was taken as the independent variable. There was no significant difference between the scores of the two groups (t=1,34, p .05 and d.F.=18 N.S.).

Conclusions

We can conclude from these data that the absence of sight does not lead to the less frequent use of subordinate clauses than in sighted subjects of the same age attending the same classes. It should not be forgotten that all the subjects in this study are at the beginning of their school careers.

I feel it would be very useful to set up longitudinal studies, following the same subjects throughout their school career.

Gestual language

Verbal language is not the only form of communication, although in the early stages it does tend to assume particular importance when one of the children is unsighted. It should not be forgotten that, in the early stages of socialisation, particular attention has to be paid to observing other forms of social communication, particularly gestual language, in unsighted subjects, given their special difficulties in acquiring and using words correctly.

Like their sighted peers, unsighted children tend to ritualise certain forms of behaviour which do not, however, appear to have any communicative intent. These have been given the name of 'blindisms' and consist in rhythmic movements of the body, like moving one's weight from one foot to the other and swinging. 'Blindisms' are viewed with great alarm by educators and everyone involved in rehabilitating the unsighted. 'Blindisms' do indeed tend to make the unsighted more easily identifiable, causing negative consequences in interactions with sighted people who find them difficult to interpret (Monti Civelli, 1978).

It is well-known that during the so-called "tuning of reference systems" stage when the transmitting subject is attempting to tune his or her message to the expectations of the receiver, if the receiver sends out nonverbal behavioural signals that interfere with the tuning or are unusual or contradict what has been said verbally, the transmitter may become bewildered (Braga, 1977). Since the feedback communication is disturbed, it is easy to imagine the difficulties inherent in the attempt at mutual adaptation. As far as the reasons for blindisms are concerned, Klein (1962) posits that unsighted children are too involved in their own bodies; they would appear to use their bodies to compensate for their lack of experience with the outside world.

Smiling, which appears in both sighted and unsighted children, is an elementary system of preverbal communication that, together with crying and vocalisation, helps form the basis for real language acquisition later. Smiling also functions as a way of attracting the mother's attention and tends therefore to guide the mother's replies and to lead to a series of interactions that bind mother and child. Unsighted children, like their sighted peers, smile selectively at their parents and strangers. However, for unsighted children voice intonation and touch are much more important as they substitute what the sighted person perceives and transmutes by facial expressions. In their study on the gestual code of the unsighted Frascarelli, Franco, and Valenti (1976) point out that often gestures and smiles are not elements of communication, since in unsighted children they remain motorial. This lack of gestual-mimic behaviour in unsighted children might be explained by the fact that bodily behaviour is based on a physiological structure, but the communicative aspects of this behaviour are conferred by a social model and cultural experience (Birdwhistell, 1970). The unsighted child, unlike the sighted one, cannot observe and imitate other people's poses. This forms an inevitable obstacle to the unsighted child's knowledge and experience of the world, depriving him/her of an important form of communication.

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DIALOGUE AND COGNITIVE DEVELOPMENT IN THE YOUNG BLIND CHILD

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Accounts of cognitive development tend to concentrate on children's knowledge of objects and properties of the physical world. As important aspects of cognition include children's knowledge of their own bodies, of themselves in relation to others, and of the social events in which they play a more or less active part, it is crucial to consider these aspects of cognitive functioning in any attempt to relate language acquisition to other developmental processes. In acquiring language the child is entering into a common communicative code, which itself contributes to the construction and perpetuation of a shared reality (Ryan, 1974). To become a competent language user the child must adopt social rather than individual meanings or words, and learn to take account of how utterances can be used to affect the behaviour of others according to pre-existing conventions and rules of social appropriacy. This may appear somewhat limiting, but the acquisition of language, nevertheless, enables young children to take a more active part in social life by putting them in a position more nearly equivalent to those around them. It can also contribute to their relative autonomy by distancing them from the "here and now" of immediate experience. Ultimately this kind of detachment facilitates imagination and hypothetical thinking, such that they are able to envisage and contemplate alternative "possible worlds".

The development of language, then, must be regarded as part of the total socialisation process. This applies as much to visually handicapped children as it does to fully sighted children. Indeed, for blind children, both the language they acquire and their ability to use it play a major role in their integration into the sighted community, and in their eventual "acceptance" as competent members of society when they grow up. During childhood the development of language increases blind children's opportunities for communicating with others, for gaining information, also for sharing experience, and for becoming conscious of that shared experience. Eventually language can play a major role in their coming to understand aspects of the world to which they can have no immediate access, because of the very nature of their handicap.

This paper is about the earliest stages of language acquisition in blind children and is concerned with the question: what makes it possible for blind children to begin to use language in the first place? As is recognised by many clinicians, this area of development is often extremely problematic for blind children. Here, I aim to suggest that relative delays or difficulties in the early stages of language acquisition may be related to the problems which blindness can pose for development in the infancy period. It will also be argued, however, that many of these problems are not a necessary consequence of blindness _per se_. The use of non-visual communication and sensory systems throughout infancy can enable blind children to proceed to language through an "alternative route" at a rate which is highly comparable to that of their sighted counterparts. Furthermore, even in the earliest stages, the development of language, or more properly, dialogue with others, can provide an invaluable tool for extending blind children's access to the outside world, including the activities and independent perspectives of other people.

My starting point is recent work on language acquisition in sighted children. This has argued that cognitive development in infancy provides the conceptual "building blocks" for the semantic component of language (e.g., Bloom, 1973; Bowerman, 1973; Brown, 1973), and that there is a developmental continuity between preverbal and verbal communication (e.g., Bates, Camioni and Volterra, 1975; Carter, 1978). Much of the work in the former tradition has drawn heavily on Piagetian theory. Bloom (1973), for example, has proposed that the rapid increase in vocabulary which typically occurs between eighteen and twenty-four months, and/or the "naming" explosion, parallels the achievement of object permanence and the emergence of a general capacity for representation. It has also been argued that apparent universals in the conceptual relations underlying the first word combinations, such as concepts of agents, objects, locations and the relations between them, represent and depend upon the terminal achievements of sensorimotor intelligence (e.g., Brown, 1973).

While this work has concentrated on the origins of the propositional content of children's early utterances, other investigators have been more concerned with the origins of the ability to use language to communicate. Again, these are thought to lie in the infancy period. For example, parallels have been drawn between later emerging verbal conversations and patterns of interaction between adults and very young infants (e.g., Stern, 1974; Snow, 1977). Here the part played by reciprocal communication systems such as mutual gaze and social smiling has been emphasized, and it has been suggested that these systems lay foundations for the interlacing of perspective between speaker and hearer, fundamental to successful communication through language (Ryan, 1974). The role of the visual system in establishing mutual attention to distal objects and events has also been stressed, and by following the infant's line of regard, the mother can gain instantaneous access to the object of his or her attention, and comment on it accordingly (Collis and Schaffer, 1975). This allows topical content to be incorporated into the interaction, which can now be "about" something in the outside world, thus providing a basis for establishing a shared frame of reference (Bruner, 1975, 1978).

Much of this work is as yet speculative, relations to language being posited by analogy rather than through developmental observation (See. for example, Schaffer, 1977.) Nevertheless, there is now a fairly substantial body of evidence which indicates that, before they begin to speak, sighted children have already established highly effective procedures for bringing about their desires and directing the attention and behaviour of others. In the last quarter of the first year, for example, "showing off" to gain adult attention, requests to be "picked up" and forms of gesturing towards distal objects, such as indicative pointing and reaching-in-demand, usually emerge in sighted children. Along with "give and take games" involving exchange of objects, the latter procedures are taken to mark changes in the child's ability to coordinate attention to people with action towards objects (Bates et al., 1975; Lock, 1980; Trevarthen and Hubley, 1978). At first, ritualised action procedures and gestures may be accompanied by distinctive prosdic marking - distinguishing, say, requests for objects from demands for attention to the self or things. Once, however, the child begins to use standard words, the use of gesture and/or vocal marking persists as an accompaniment to the child's first utterances, serving to convey the child's particular communicative intention. Thus, the communicative functions established preverbally are related to and extended by those first expressed in language, giving support to the general notion that the "very nature" of the child's preverbal communication system may be such as to aid the passage through to language (Bruner, 1978).

Now, whether one emphasises the propositional content of children's utterance or the communicative functions served by using them, each of these research traditions predicts considerable problems for blind children beginning to acquire language. The work of Fraiberg (1977) and other clinical investigators (e.g., Burlingham, 1961, 1964; Wills, 1970) emphasises the severe constraints which face the blind infant in the development of both cognitive functioning and early social interaction. Though the evidence on early language development in blind children is surprisingly limited (see Urwin, 1978a), what there is suggests that, even amongst those blind children without additional handicaps, many are initially delayed in acquiring their first words and may not immediately use them spontaneously in communication - they may repeat them to themselves in their own play, for example, or fail to use them to initiate interaction, requiring some initial prompt from the parent. Though other children may acquire their first words within the sighted age range, social words and ready-made phrases tend to predominate for a prolonged period. The child's language may remain tied to his or her own body movement or restricted to familiar routines, where the reliance on phrases acquired wholesale is often coupled with a marked propensity for imitation and/or echolalia. Even in the relatively advantaged group of blind infants studied by Fraiberg (1977), there was some delay in using words to name objects and in the production of the first word combinations. This, she suggests, was due to the constraints blindness imposes on the development of sensorimotor intelligence and the emergence of representation in the Piagetian sense. Fraiberg's position centres on the propositional content of the child's utterances, but naming objects is generally a communicative act, frequently accompanied by gesture in sighted children. Blind children do not, apparently, point spontaneously to distant objects and in my own experience it is extremely rare to find blind children delighting in "naming for naming's sake" in the early stages. There is also some evidence to suggest that the use of words to make requests, particularly for objects, is slow to emerge in blind children (e.g., Wills, 1979). This would again suggest that young blind children are constrained by the absence of gesturing in the preverbal period, and/or by the lack of knowledge of the permanent existence of objects. In addition to these kinds of characteristics, there is one development which Fraiberg (1977) has suggested is universally delayed in blind children: the acquisition of 'I' as a stable pronoun and by implication the ability to use 'you' to refer to the activities of the other party in interaction. She proposes that this is related to a lag in a more general developmental process, the capacity for self representation, a claim which is again consistent with the assumption of constraints on reciprocal interaction and/or independent action in infancy.

Broadly speaking, these characteristics give support to the kinds of predictions which can be drawn from the "sighted child" literature. To leave the matter there, however, would lead to an extremely negative conclusion. It is all too easy to assume that difficulties are an inevitable consequence of blindness. Furthermore, there are many problems in relying entirely on work with sighted children in monitoring the progress of children without vision.

Even in its own terms, the "sighted child" literature may be incorrect or inadequate. For example, the reliance on Piagetian theory to account for the origins of the propositional component of language must be criticised, as is increasingly being recognised (e.g., McShane, 1980). Though Piagetian theory proposes a parallel between conceptual structures and their expression in language, it provides no account of how the two processes are actually united in the child's development. Furthermore, knowledge of objects per se does not explain how or why the child acquires particular words to talk about them. Nor does it explain the motivation to speak, to use language to share experience with others, and/or to build upon it. This presupposes a history of joint attention and negotiation through which talking of things can become meaningful to the child, eventually as a goal of interaction in its own right.

We are now talking of language as communication, and of the interpersonal processes through which the child enters into the common communicative code. Here it is notable that studies of preverbal communication in sighted children have concentrated on precisely those communication systems that blind children lack, such as the use of eye contact and gesture in the regulation of mutual attention both between mother and child and to objects and events in the surrounding context. But even if visually based communication systems usually play as important a role in parent-child communication as the sighted child literature leads us to believe, again it may not be useful to assume that lack of vision necessarily results in difficulties or developmental delays. To do so discounts the possibility that they may reach similar ends through rather different routes, and what the distal context might be like for them. We must also consider the implications of the considerable gains in communicative effectiveness which can result from the entry into language itself.

To throw light on some of these issues, the next section describes the development of three children whose language and overall development has progressed extremely well, even in comparison to the children in Fraiberg's (1977) sample. This provides an opportunity to demonstrate what can be achieved by blind children, and to consider the conditions which make relatively satisfactory development possible.

The Development of Three Congenitally Blind Infants

The three children, Jerry, Steven and Suzanne, were all subjects in a longitudinal observation study which spanned a large part of the preverbal period and the early stages of language acquisition (Urwin, 1978b). All three children are legally blind and have no additional neurological impairment. Jerry and Suzanne are totally blind through optic atrophy, but Steven has a little sight in one eye, in which he has glaucoma and aniridia. Though this limited vision gave him considerable advantages, his early communicative behaviour and language shares many characteristics differentiating him from fully sighted children, as will become clear.

The children were observed, audio and video recorded in the home in interaction with one or other of their parents at regular intervals. Steven and Jerry were followed to the point at which they began to produce two-word combinations. This occurred at approximately twenty months in each case. The study of Suzanne was extended into the third year in order to follow her language development to a later stage. The final recordings were made when she was two years three months old. Suzanne's sister, Elaine, who is two years older and sighted, was present for some part of all of the recording sessions. Jerry and Steven are both first born.

Apart from differences between the children, the home environments were very different and the children's parents held rather different views on child rearing, their own roles, and the aspects of development which they wished to foster. This contributed to contrasting styles of parent-child interaction, the contrast being particularly marked between Steven and Jerry. (See Urwin, 1978c). Nevertheless, there were many similarities in the three cases, and striking parallels with sighted children's developments.

The relatively satisfactory development observed in these children was largely due to the opportunities for social interaction provided by their parents. This itself depended on the parents' ability to find alternative cues to the children's involvement and attention, and on their own use of alternative communication systems. Interacting with their babies in the first year, for example, in spite of the absence of - or, in Steven's case, very limited opportunities for eye contact - these mothers would watch their babies' faces intently, "mirroring" changes of facial expression and the affect of body movement in their voices. In tone of voice and in what they said, they would pick up signs of discomfort and frustration, excitement and heightened pleasure, often tailoring their utterances to prompt some further "reply" from their infants. They also used touching, stroking, tickling and grosser forms of body play extensively, elaborating their own routines and adapting versions of well known baby games such as "pat-a-cake", "ride-a-cock-horse" and even "peek-a-boo". As I have described elsewhere (Urwin, 1978c), the parents used the predictability inherent in these games to build up expectances, encourage anticipation, and, eventually, to "push" the babies towards taking more active roles. Again, in these contexts, they used their own speech to mark the communicative effectiveness of the children's body movements. By the end of the first year, when sighted infants are beginning to "show off" or to repeat social interaction procedures to manipulate adult attention, all three infants were capable of dictating the "next step" in these games, using their own bodies to control their parents' actions and reactions, and accompanying these procedures with distinctive vocal marking.

Apart from framing their infants' body actions and mood, in all three cases the parents also used their own speech to prompt vocal exchanges with their infants. In the first year the mothers would not only talk to their infants, but also mark, question, imitate or otherwise respond to their babies' vocalizations, encouraging them to vocalise in turn. By the last quarter of the first year, each of the infants would collaborate in and prolong vocal imitation sequences and quasi dialogues, thus showing an exquisite control over the adult's following responses. This was particularly marked for Jerry, who would keep in vocal contact with his mother for as long as twenty minutes at a time while she got on with the housework in an adjoining room.

In the development of vocal imitation, their ability to control preverbal vocal dialogues, and their mastery of particular action procedures for controlling their parents' reactions in the context of body play, at the end of the first year these children showed a level of communicative competence and understanding of agency which is well on par with sighted children's (e.g., Bates et al., 1975; Piaget, 1951). However, it was not the case that there were no areas of relative restriction for these children. As might be anticipated from the sighted child literature, these were particularly marked in situations involving joint attention to distal objects and events. None of the children used indicative pointing and reaching-in-demand gestures as sighted children do, and the mothers could not use gaze direction as a cue to the children's attention to something in the surrounding context. Nor did they appear to find it easy to pick up the highly ambiguous signs that their children were listening to something, unless they were producing these sounds themselves.

However, in the child's immediate vicinity, mutual attention to objects could be established through incorporating objects into well established body games for example (Steven), and through the mother using her own speech to comment on some object the child was investigating (Suzanne). Though the "give and take" games in which some sighted children delight did not appear spontaneously in these children, at a comparable age Jerry would sustain long exchanges involving imitation of banging objects to produce sounds, and from similar beginnings, Steven's mother elaborated progressively more complex forms of joint action on objects.

The extent to which the respective parents involved themselves in their infants' play with toys and other objects, and referred explicitly to objects when speaking to their children, varied considerably. This was one of the major consistent differences between the interaction styles of the three families, a difference which was eventually reflected in the children's early language (Urwin, 1978c). Nevertheless, overall there were many similarities in each child's course of language development through the one word stage, and again, there were striking parallels with sighted children.

Since these children had already established some understanding of their own communicative effectiveness in the preverbal period, unlike some blind children, they used words productively in communication from the outset. As is typical of many sighted children (e.g., Bowerman, 1978; Ferrier, 1978), each child's first words originated in affective or routinised interaction contexts in which he or she had gained some measure of active control. Consistent with the evidence on continuity between preverbal and verbal communicative procedures in sighted children (discussed in the last section), pre-established communicative procedures based on regularised actions and/or vocalisation, accompanied these utterances, conveying the child's communicative intentions. Jerry, for example, while standing by the parent's knee, would use a ritualised jerk of his body to request to be lifted "up", and take body movements originally part of a game to demand "more" play or the same "again". Through the single word period, like sighted children, these children extended early acquired words into new contexts, including those involving objects, thus shifting the locus away from their own bodies. At around eighteen months their vocabularies expanded rapidly and they begin to produce their first word combinations. In each case these developments occurred with the beginnings of pretend play, and changes in the way the children searched for lost objects which indicated that they knew of their continued existence independent of specific locations.

These observations clearly challenge the assumption that the emergence of representation is necessarily delayed in blind children. However, despite the broad similarities with sighted children, there were some areas of relative restriction, which were particularly marked for the two totally blind children, and were again related to events in the distal context. By the end of the single word period, these children had amassed a large number of names of significant people, which they used extremely frequently. Suzanne, for example, would call out to people present and even to the children next door when she heard them playing outside. But by the time they had begun to combine words, none of the three children were observed to comment explicitly on what other people were actually doing (as would be expressed in utterances of the form, "Mummy push", or "Mummy go", for example). This is not an early development for sighted children. But Greenfield and Smith (1976) report that the two children in their longitudinal study had begun to refer to other people as agents of their own actions by the end of the single word period. Nor did the blind children comment on other people's possession of objects at this stage, though they referred to their own.

Related constraints appeared in the children's use of words naming objects. In acquiring names of people, the children were acquiring words for those objects in their environment which were capable of answering back. In contrast, relatively few inanimate objects in the children's environments produced sounds independent of being acted upon. All three children would name familiar objects, sound producing or otherwise, when they contacted them physically, and in Steven's case, when they came within his limited visual field. But at this time none of the children would name or refer to objects remote from themselves, nor did they make requests for them. Steven began to demand objects at around eighteen months, but these demands were restricted to particularly familiar things when he could see them. Despite the onset of combinatorial speech, Jerry had not begun to demand objects by the end of the study. Suzanne's first requests for objects emerged at around twenty-one months. At this time they were extremely infrequent and were handled with questions of the form "Where's X?", acquired wholesale.

Why should these children fail to refer explicitly to other people's actions and to request and name objects remote from themselves? Here a simple explanation in terms of a "delay" in some general cognitive process is clearly inadequate: their language development in other areas was well on par with sighted children's, their search behaviour and other activities involving objects, and further developments in social play indicated that they had some understanding of reversible roles and other people's agency (Urwin, 1978b, c).

An alternative explanation may lie in the different nature of the context for blind and sighted children, and the difficulties which face the blind child in sharing that context with other people. The majority of sighted children's single word utterances and early word combinations are elicited by objects which are perceptually present, and by events taking place in the immediate or imminent "here and now". Naming behaviour is largely confined to things which are in view, and what young children want is generally elicited by things which they see, the objects themselves or props in the immediate context, such as cues which indicate their habitual location (Huxley and Urwin, unpublished data). In contrast, blind children are excluded from much that is going on around them. For them to name and request distal objects is more akin, perhaps, to sighted children's referring to things which are absent or concealed, with minimum support from the immediate context. This use of language is not observable in sighted children with any degree of frequency in the early stages.

This, then, raises the question: what makes it possible, or relevant, for blind children to refer to distal objects and events to which they have no immediate access? One answer is, perhaps, paradoxical: that the process can be greatly aided by the entry into language itself, or more properly the opportunity this creates for dialogue with other people. This is illustrated particularly clearly by Suzanne, who was followed to an older age, and for whom these restrictions relative to sighted children had apparently been resolved by the end of the study.

Of the factors contributing to this development, in Suzanne's case, mobility played a particularly significant role. Though an active child, like many blind children she was initially timid in transporting herself across any great distances. But, by two years three months she was climbing the stairs and working freely from one room to the next, such that in the final recording session a large proportion of her utterances consisted of statements about her own mobility, in which locations outside her own body stood as the goal of her intended action: "I'm going upstairs", "I'm going in the bedroom", and "Mum, let me go outside".

Mobility, of course, brought Suzanne into direct contact with objects and places which were further afield. Yet these experiences per se were less significant than the fact that mobility brought with it a new range of social activities, which produced corresponding changes in the mother's expectations and demands. It also opened new contexts in which talk could take place. Here the development of Suzanne's own language had consequences for her mother's use of speech which seemed particularly suited to extending the child's access to the surrounding environment, such that dialogue played a critical role in the resolution of early restrictions. This can be illustrated particularly clearly by looking at interaction sequences involving mutual attention to objects, and at the significance of Suzanne's ability to name them for herself.

As has been mentioned previously, throughout the first period of the study Suzanne's mother would comment explicitly on the objects which Suzanne was holding or investigating. This allowed the child to become familiar with their names, and also marked the fact that these objects were accessible to them both. As soon as the child began to name objects and to produce some verbal acknowledgement from the mother in so doing, she herself now had a relatively unambiguous means for manipulating mutual attention to objects and for establishing that her proximal space was shareable with her mother. This had important consequences for the mother's role in the interaction. The fact that Suzanne used the common terms for naming objects made it indubitably clear that she knew of the particular things to which these words referred. Coupled with the evident changes in the child's exploratory strategies occurring over the same time period, and apart from the fact that she was now answering verbal initiatives from the child, as a consequence, the mother herself began to refer more frequently to familiar objects when they were beyond the child's range of touch. For example, she began to use the names of familiar objects in "Where's X?" questions to prompt the child to explore the space around her: "Where's the train, Suzanne"? or "Where's the car? Find your car for Mummy". It was this question form which the child took over to express her first requests for objects which were distal from herself.

Yet, the ability to articulate demands itself added a new dimension to the interaction. In conjunction with the fact that Suzanne was now becoming increasingly mobile, the new level of control shown in this child produced further changes in the mother's speech, such that she became less likely to respond to the child's requests for objects by actually providing them herself. Rather, she would prompt the child to get them for herself by specifying their location relative to the child, herself, or to familiar landmarks for which she now had names: "This way", "That way", "It's just behind you", "It's on the table", "It's by the door", or "It's in the bedroom". In this way, through taking what the child expressed explicitly as a starting point and relying on her understanding of familiar words, the mother's language linked the child to the surrounding context, giving her a handle on the outside world. Again, the child took over many of the mother's location markers, such that she was using such terms as "in" and "on", frequently and appropriately, by the end of the study.

Apart from contributing to her ability to talk about distal objects and locations, dialogue with her mother also facilitated Suzanne's using language to refer to other people's actions and possession of objects. This can be illustrated by looking at the origins and emergence of Suzanne's references to her sister, Elaine.

As mentioned above, Elaine was present for a large part of each recording session. During this time Suzanne's mother would consistently refer to Elaine in her speech to Suzanne, keeping her comments within the kinds of things Suzanne was likely to understand. Early in the second year, most of the mother's references to Elaine concerned her state, her immediate actions or her desires. For example, "Elaine's tired, Suzanne", "Ooh! Elaine's gone bump!", and "Aah, Elaine wants a cuddle". But increasingly these references came in response to verbal initiatives from Suzanne as, from eighteen months onwards, she began to call out to her sister by name. Often these appeals occurred as her sister made some sound which caught her attention. In these contexts the mother would comment on what Elaine was doing, thus providing a basis from which Suzanne could learn to interpret the significance of particular sounds. From the end of the second year the kinds of activities in which the two sisters engaged became more obviously similar. They played with many of the same toys, for example, such that references to Elaine in the mother's speech began to include statements or explanations about Elaine's actions on familiar objects. By the third year the mother was obliged to sort out some competition between the two sisters, as is suggested in the following example. It illustrates how, at the close of the study, Suzanne was able to use language both to establish mutual attention to objects, and also to distinguish her own and the other's access to them. Reconstructing the kind of language which the mother used habitually to "keep the peace", Suzanne marks the relation of possession, and perhaps comes to terms with notions of sharing.

SUZANNE, at two years three months -

Suzanne: Elaine's got the case.

Mother: Elaine's got the case, yes.

Suzanne: And _I_ got the hairdrier. Naughty old hairdrier!

Thus, through entering language, Suzanne is beginning to gain a position for herself as an active subject within the family. Her ability to refer to Elaine and her activities was, of course, related to the fact that her sister's actions were predictable and very similar to her own. Yet, at the same time, by consistently drawing attention to and marking this relationship of correspondence, the mother's language had helped to provide the bridge. Once again, dialogue made available to the child what was not immediately accessible to her, as the use of words set the "unknown" in relation to what was already known.

Concluding Discussion

The close parallels between these three children's developments and those of sighted children challenge many assumptions as to the necessity of developmental delay in blind children. This may have important implications for the kind of guidance which can be given to parents of other blind children. It also draws attention to the dangers of relying entirely on theories of development in sighted children as a basis for prediction, and perhaps also indicates limitations in these theories themselves.

In this paper I have implicitly been critical of the tendency to reduce cognitive functioning to the child's knowledge of objects and properties of the physical world, and of the recourse to a general representational process as an explanation of the emergence of language. This is not to say that knowledge of objects and opportunities for active exploration are unimportant, either in themselves or for the development of language, in both blind and sighted children. Rather, my argument has been that an explanation of the development of language must take account of interpersonal cognitive processes, such that one of the more crucial developmental questions becomes: what is it that enables young children to integrate their experience of objects with their interactions with people in a way which will motivate them to talk about things? Furthermore, the use of language is not only dependent upon, but also changes the child's relationship to the environment, by virtue of its inherent potential for multiple encoding. For example, words can be used to access, mark or discover relationships which apply across and within different contexts, such as relations of similarity, correspondence and difference, thus bringing into being new orders of meaning.

In describing early social interactions between these three blind infants and their parents, I have aimed to illustrate how non-visual communication systems can provide a basis for establishing mutual attention and reciprocal interaction - a potential framework for shared knowledge. Giving examples of games, vocal routines and body play, I have suggested how predictable interaction contexts can enable blind infants to develop and utilise regularised action procedures for communicating intention and controlling the other's participation. By illustrating how objects may be brought into social play, for example, or how a mother may mesh comments on objects with the child's attention and involvement of the moment, I have aimed to suggest that an affective basis can be established from which talking of things can become meaningful to the child, in the context of his or her relationships with significant others. Though in these areas these children have developed at a rate comparable to sighted infants, establishing communication about things in the more distal environment was more problematic. This contributed to apparent delays in certain aspects of their language development, such as demanding and naming objects remote from themselves. I would argue, however, that it is misleading to assume that these constitute "delays" in the strict sense, as if what we are observing is the late emergence of a process equivalent to the early requesting and indicating behaviour of sighted children. Though the "end products" may appear similar, the development processes involved are far more complex for the child without vision, requiring entry through a different route. The child followed to an older age illustrates how the acquisition of language can itself provide blind children with a means for establishing that the wider context in which they are acting is shareable with other people. Examples have indicated how the relations set into play in dialogue with Suzanne's mother enabled her to discover new functions for language, such as requesting objects, and made the more distal environment increasingly available to her.

These three children did develop more rapidly than the majority of blind infants, and the account which I have presented is not intended to represent the "typical" course of development in the blind child. However, by illustrating what is possible for blind children to achieve, it must endorse the importance of giving the parents of other blind children the best possible support in the early years. Though the account has only been illustrative, hopefully it has been sufficient to suggest the value of taking further Fraiberg's (1974, 1977) emphasis on helping mothers to read alternative signs of their babies' attention and involvement, and on encouraging them to use alternative communication systems themselves. Here I have also indicated the important role which the parent's own use of speech may play: in sustaining social contact and promoting reciprocal interaction; in marking the child's affective expressions and feeding back the effects of his or her actions; in commenting on the child's attention to objects; and eventually in extending his or her access to the wider environment.

But though these kinds of considerations may give useful guidelines, it is clearly inappropriate to think in terms of providing parents with "recipes" for promoting their child's development, as if we could know and specify in advance what procedures they should follow. Any attempt to give support to parents is a dialectical process in which the therapist or consumer must take account of the parents' particular living situations and their own beliefs about children and development. This is the reality in which the child is growing up. Perhaps the most useful perspective, for ourselves and the parents and children, is one which will enable each blind child's parents to view the task of bringing up their child as a process of continual discovery.

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VISUAL DEVELOPMENT AND LEARNING BIRTH TO SEVEN YEARS

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In the past ten years, evidence of visual development and learning through the normal visual sense indicates that the capacity is much greater than was once thought. The sequence of development, when there is no impairment to the system, is characterized by an emergence of various behavioral and physiological patterns. Visual functions seem to appear, then disappear, merge, and overlap with each other as they become stabilized. Development of the system is related to the stimulation provided by looking and by integrating movement precipitated by the looking (Barraga, Collins, & Hollis, 1977).

The visual system, from the beginning, is integrally related to development in the motor, perceptual, and cognitive systems. Research evidence has made it possible to define the functions and skills of the visual system with the knowledge of cognitive development in order to estimate the "visual age" of a child or adult. Knowledge about development and learning through an impaired visual system is still incomplete, but enough is known to indicate that, even when there is extensive impairment, the system can be used effectively at an early age when looking and scanning behavior is stimulated and organized by nurturing and caretaking adults.

This paper will summarize some of the important research, present a chronology of optical and perceptual development, and discuss a pattern of tasks and activities which has been shown to facilitate development and learning in visual functioning.

The visual system may be said to begin development when any evidence of response on presentation of visual stimuli can be documented. Cortical evoked responses may be evident as early as 22 weeks from conception, and the presence of pupillary reflex was elicited at 29 weeks from conception. Premature newborns seem to show the same visually orienting responses and the same preference to movement, high visibility, and stimulus elements of curvilinearity as do full term newborns. These reactions indicate that something is happening within that organism as a result of the external invasion of stimulation to the visual system (Vurpillot, 1976).

In discussing visual cognition in early infancy, Haith (1976) says that we need to understand how precognitive sensorimotor activity unfolds if we are to understand how the use of the senses relates to future learning. He theorizes that the brain drives the eye. By watching the fixation patterns of infants and children, we may be able to infer what the brain is trying to do. The question yet to be answered is how infants are biologically organized to acquire information from their world and how does the organization change with experience. Learning begins when infants begin to seek out visual input on their own by choosing what to look at and when to look. Infants who have been studied have been found to do the following:

1. Open the eyes if awake and alert.
2. Maintain an intense vigilant search even if there is no light.
3. Continue to search even if they find light but no edges.
4. Scan back and forth across contour when they locate it.
5. Maintain a narrow scanning range if located contour is in the vicinity of other contours, but broader range if the pattern density is low.

Haith (1979) postulates that infants behave as they do visually so as to maintain visual cortical firing activity at maximal level and to steadily increase the rate of firing. Active visual searching and scanning is necessary if cortical stimulation is to be maintained.

Applying these same concepts to infants whose visual systems (and in some cases the entire neurological system) are impaired raises many unanswered questions. Miranda and Hack (1979) found that "extreme central nervous system damage precludes visual orienting responses in the newborn." Deviant visual responses at birth seem to be an indication that visually orienting responses are not possible when there is damage to the nervous system. Does this mean that the brain is unable to drive the eye? When there is no response to visual stimuli, then there may be no stimulation at the cortical level. Infants will attend to visual stimuli as long as they are receiving visual information, and when they no longer attend, then no further learning is taking place.

The attached chart (VISUAL FUNCTIONS)* defines specifically the visual functions performed by the optical, perceptual, and visual perceptual systems in the process of development and learning (Barraga & Collins, 1979).

The capacity of the visual system for development and learning can be noted by looking at the sequence of the expanding and increasingly complex visual characteristics found at each month and year of the preschool period.

0-1 month	Attends to light and possible visual forms; weak ciliary muscles--limited fixation ability so objects appear out of focus
1-2 month	Follows moving objects and lights; Attends to novelty and complex patterns; Stares at faces; Begins binocular coordination.
2-3 months	Eyes fixate, converge and focus; Discriminates faces and yellow to red color waves.
3-4 months	Eye movements smoother and acuity improving; Manipulates and looks at objects.
4-5 months	Eyes shift focus from objects to body parts; Attempts to reach for and move to objects; Visually explores environment; Recognizes familiar faces and objects; Tracks objects across entire field of vision.
5-6 months	Reaches and grasps objects indicating eye-hand coordination.
6-7 months	Shifts visual attention from object to object; Reaches and rescues dropped objects; Fluid eye movements.
7-8 months	Manipulates objects looking at results; Watches movements and scribbling of others.
9-10 months	Visual acuity good, accommodation smooth; Looks for hidden objects even around corners; Plays looking games.
1-1½ years	All optical skills refined and acuity good; Fits objects together, marks spontaneously.
1½-2 years	Matches objects, points to objects in book; Imitates strokes, actions.
2-2½ years	Visually inspects objects in distance; Imitates movements of others; Matches colors, like forms; Increased visual memory span; Orders objects by color; Regards and reaches simultaneously.

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2½-3 years	Matches geometric forms; Draws crude circle; Inserts circle, square, and triangle; Puts pegs in holes; Puts 2 puzzle pieces together.
3-4 years	Matches identical shaped objects by size; Good depth perception; Discriminates line lengths; Copies cross; Discriminates most basic forms.
4-5 years	Refined eye-hand coordination; Colors, cuts, pastes; Draws square; Perceives detail in objects and pictures.

Development shifts dramatically during the early years from physiological control of eye movements, accommodation and convergence, and refinement of sharpness and clarity of visual acuity to that of visual perception. Visual memory, spatial orientation, and visual motor coordination are all well stabilized to the point that visual perceptual processing becomes an automatic cognitive ability.

The Program to Develop Efficiency in Visual Functioning (1980) which is a revision and extension of The Low Vision Kit (1970) was designed as an assessment and instructional program to facilitate and promote visual development and learning in persons with visual impairment. The program is based upon the information presented in the beginning of this paper. The program begins with the lowest level of response to light and progresses through the visual readiness and prereading level. Major portions of the assessment and instructional aspects are appropriate for persons who are functioning at or above the mental age level of three years but are just beginning to learn to use impaired vision effectively. Other programs may be of greater benefit to multihandicapped children who also have damage to the visual system (Ffooks, 1969; DuBose & Langley, 1977; Efron & DuBoff, 1975; Harley, DuBose & Bourgeauet, 1981).

The contents of The Program To Develop Efficiency in Visual Functioning are as follows:

Volume I: Diagnostic Assessment Procedure
- Introduction
- Program Components and Organization
- Use of the Program
- Evaluator's Guide
- Special Considerations for Various Populations
- Environmental Conditions
- Administration
- Use of Assessment Data
- Assessment Procedure and the Design for Instruction
- Assessment Items

Some of the items sampled in the assessment are:
- Learner will react to visual object
- Learner will locate object visually and move to it
- Learner will discriminate missing parts
- Learner will observe picture and position objects to match
- Learner will identify action in pictures and arrange in sequence
- Learner will match letters and numbers embedded in design
- Learner will write letters and numbers from dictation

Volume II: Design for Instruction

Instructional Planning Index
General Suggestions
Populations for Instruction
Environmental Conditions
Design for Instruction
Evaluation of Progress
Overview of Lesson Sequence - 150 specific lessons
Prereading Suggestions

Volume III: Source Book on Low Vision
Introduction
Historical Background
Functional Use of Low Vision
Major Eye Conditions and Their Influence on Visual Functioning
Illumination and Visibility Factors
Magnification Aids, Low Vision Aids, Type Sizes, Faces, and Styles
Interdisciplinary Communication and Cooperation
Suggestions for Helping Low Vision Learners
Appendices

Since the philosophy of medical and optometric specialists has changed, parents and teachers must assume the major responsibility for teaching young children to use their impaired vision to maximum so as to prevent some of the lags often seen in functional behavior and performance of tasks requiring vision such as reading and writing. We have the information! We know what to do! We know how to do it! Let's be sure we _are_ doing it so that every low vision child can benefit to the limit of individual abilities.

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CHART: VISUAL F IONS

Optical

Light Reception	Fixation	Focus	Accommodation
Visual Awareness	Tracking		

Optical and Perceptual

Discrimination	Recognition	Visual Memory
Light, dark, & gross contour	Faces, people, colors	Real objects, people, colors
Shapes, lines, angles, sizes	Objects & pictures of same objects	Pictures of people and objects
Details in real objects, faces, & figures	Details in pictures	Details
Pictures of objects & people	Abstract figures & symbols	Abstract figures & symbols

Spatial Orientation	Visual Motor
Position of objects in space	Reach, grasp, & place in position
Spatial relationship of objects	Modeling--Imitation of body position and actions
Spatial positioning of body	Reproduction of lines, shapes, figures, and symbols

Visual Perceptual

Figure-ground differentiation

Visual closure

Whole/part, part/whole relationships

Visual association

(Barraga)

AN EDUCATIONAL ASSESSMENT OF THE PARTIALLY SIGHTED INFANT AND PRE-SCHOOL CHILD

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This paper only claims to share some of the experiences this writer has encountered in her work with visually impaired infants and pre-school children over the years. This is not yet a formal assessment, but rather an accumulation of observations and techniques which have aided this writer in assessing the use of residual vision in very young partially sighted children.

The initial difficulty encountered in this assessment is usually the seeming discrepancy between the child's medical eye report and its written or reported prognosis and the existence of residual vision which the parents have observed. In other words, the eye doctor's report may state that the child is totally blind and that there seems no chance of his retaining any residual vision, whereas the parents will have observed otherwise in the child's behaviour and visual response.

This writer's experience has shown that although this seeming discrepancy might occur, the parents in this case usually feel very reluctant to share their observations or even trust in their validity. It seems very difficult for them to contradict what they have been told by a medical authority. This writer has therefore found it most helpful to ask the parents to engage their baby in stimulating play and observe their baby's visual responses to his parents and to any objects or toys he may be introduced to. If the assessor observes some visual response on the part of the baby (specific observations will be discussed a bit later) then it might be appropriate to ask the parents, "What do you think your baby can see? How much do you think your baby can see?" These questions often bring great relief to the parents. It is as though they are finally getting some confirmation of their feelings and observations and in so doing the assessor seems to give the parents further security in their role as parents.

It is most important to gain trust between the parents and the assessor since the parents are the ones who spend the most time with their baby and they will be the ones to report to the educational staff their child's responses to visual stimuli. This writer has found that parents are always most accurate and most informative in their observations of the child, and in so being they can be of most help to the assessor and the educator who will try to build a programme of visual stimulation based on these experiences and observations. One must realize that oftentimes the parents have difficulty analysing their observations of their baby's visual responses or they may not be able to organise their thoughts and relate them in a way that might be helpful to the assessor. In most cases the assessor might help in this process by asking directive questions concerning the child's use of residual vision. Some of these questions might be:

1. Does he turn to look at a source of light?
2. What objects does he prefer to look at?
3. Does he prefer looking at objects or people?
4. Which eye does he prefer, or use all the time?
5. Does he tilt his head while looking at something or does he seem to use a specific area in his field of vision?
6. Does he bring objects up close to his eyes and at what approximate distance from his eyes?
7. Does he reach for things he sees and at what distance does he seem to see them?
8. If he crawls or walks does he seem to avoid obstacles in his way and at what

8. (cont.) distance does he seem to notice them?
9. What size objects does he seem to notice and reach for, crawl or walk to?
10. Does he look at his hands while playing with toys and does he then differentiate visually between one toy or another?
11. Does he recognise faces of family members whom he encounters daily, and at what distance does he recognise them?

At this point it might be added that this writer feels that it is the assessor's responsibility to help explain to the parents how the seeming discrepancy between the eye doctor's report and their observations might occur. This seems important in order to maintain the parents' trust in the ophthalmologist treating their child who will be of most help to the partially sighted child as he develops.

What seems to be most confusing to the parents and untrained educators of the partially sighted young child is the fact that he does not make use of his residual vision at all times, or that his responses to visual stimuli seem to improve as he develops. It is difficult to comprehend why the child makes use of his residual vision on select occasions or in very specific situations rather than making use of it at every possible opportunity. Parents and educators treating the partially sighted child need to understand that the young visually impaired child needs a great deal of motivation, concentration and perseverance in order to make use of his residual vision. Developmentally, the infant and toddler have a very limited amount of ability to concentrate and in order to use the residual vision the child must pool together so many variables (limited field of vision, poor acuity, correct lighting and motivation to stimuli) that it begins to become clearer why his use of this vision is so selective.

It will also become clearer that as the child's cognitive development increases his motivation for "seeing" things will also increase and he might seem to "see more". It will be the educator's function, with the parents' help, to find various techniques of motivating the infant and young child to use his residual vision as much as possible.

Since the child is unable to describe to us what he sees and how he sees, it will be parents' and educators' observations of the child's responses which will let us know how much he sees, how he uses his vision and in what occasions he chooses to use this vision. As the child develops cognitively he will "show" us, more and more, how much of his vision he is able to use. For example: - it is easier to evaluate what size objects a child can see when he knows how to reach, or even more so, when he learns to crawl or walk. A child who can point to details in a picture tells us more about his residual vision than an infant who is only able to look around while lying on his back.

The following are a few of the techniques developed by the staff of Home-Teachers working with visually impaired babies and young children. (These techniques were described with the help of slides.) These techniques were mostly developed to stimulate and motivate very young children to use their residual vision more often. These techniques are not meant to provide a formal training programme, but rather to prepare the visually impaired child for a formal programme such as that offered by Dr. N. Barraga:

1. Holding the baby up close to his mother's face allows him to focus on her face. A similar response is achieved while placing the infant in an infant-seat or a carriage when he is being fed so that he faces the person feeding him and has an attractive visual stimulus to focus on.
2. In the crib or the playpen it is advisable to hang various toys and objects which are brightly coloured and which will attract the baby. A textured blanket made of squares of various materials (wool, plastic, cotton, felt, velvet, bells sewn on, etc.) was placed under one baby to encourage a varied tactile experience. The baby lifted his head in order to look at a bright red square beneath him.

3. When introducing a rattle to a visually impaired baby it is recommended that it be rattled in front of the baby's face (about 5") allowing the baby a longer time to focus in on the toy visually. (Visually impaired children take longer to focus.)
4. When a baby has learned to reach for things he sees one should try to place the toy or object in front of the baby's eyes (or the eye that sees better) and allow the baby to focus on the object and reach for it. One needs to make sure that the toy does not make a noise so that the stimuli is indeed visual rather than auditory.
5. Encouraging a toddler or a pre-school child to look is sometimes achieved by placing a favourite snack food on a contrasting background and asking the child to find it. The reward being that he can eat it. Asking the child to place his hands on his lap while "looking" for the treat further guarantees that he uses his eyes to see rather than his hands.
6. The above technique can be further varied in using it in finding magnets with a horseshoe magnet, specific shapes, a single peg in a peg board, or locating the empty hole in a peg board that is almost completely filled.
7. One particular child became motivated to look by sitting up close to slides of people she loved and toys she liked. After this experience she was more willing to attend visually to more conventional materials.
8. Electric lights are most always attractive to the visually impaired child. Rather than flashing a flash light one parent devised a board with several types of switches. Each switch turned on a different coloured light. The children enjoyed discovering which light turned on and reached to touch that light. They were also asked to name the colour of the light.

In summary one can say that the initial assessment of a visually impaired child depends on careful observations made by both parents and educators. The next important goal seems to be that of devising appropriate means of motivating each child individually to use his residual vision to its maximum during the very early years of his development.

MEDICAL AND PSYCHOLOGICAL ASSESSMENTS: A METHOD OF DETECTING DEVELOPMENTAL DELAYS THROUGH A BABY PHOTO ALBUM

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In spite of sophisticated tools for identifying children with handicapping conditions at early ages, large numbers of the world's handicapped children are not being detected until they are of school age. Efforts such as Child Find in the United States have not been sufficient to locate children who could profit immeasurably from early identification, diagnosis and treatment.

In the United States, the passage of a national law (94-142) requires personnel in each state to make an active, ongoing effort to identify, locate, and evaluate all handicapped children, birth to 21 years old. To date, however, many of these efforts have not proved successful in identifying young handicapped out-of-school children, especially low SES (Socio-Economic Status) and minority children in dense urban and sparsely populated rural areas. A large part of this problem lies in making initial contact with these populations and in making them aware of potential handicapping conditions. While accurate state and national figures are difficult to extrapolate from existing data, similar results can be seen in the United States medicaid program.

Currently, out of an estimated medicaid population of about 11 million children, only about two million children are receiving screening services. This comprises less than 20% of the target population eligible for services. This would indicate that traditional methods of case finding have proved less than successful. The major method currently utilized is awareness campaigns which ask questions like, "Do you know of a handicapped child?" or "Do you have concerns about your child's development?" What becomes readily clear is that these mass media campaigns are either not seen, not responded to, or, most probably, both. Low SES and minority groups may not get newspapers or flyers. If they do, they may not perceive of their child as handicapped or have concerns about their development. In addition, if they do have concerns, they may have difficulty getting transportation to a screening scheduled on a particular day or in a particular location. Transportation has proved to be a great problem both in urban and rural areas for SES groups.

The task, then, has become: how to get meaningful, understandable and nonthreatening information to low SES and minority parents in urban and rural areas which provide them information and indicators on their child's growth and development.

The Baby Book

The purpose of the Baby Book is to provide a prescreening instrument to assist caregivers who reside in lower socioeconomic conditions and members of minority groups to detect developmental delays in their infants and young children. The overall objectives are:

1. To increase caregivers' awareness and knowledge of their child's developmental status and potential handicapping condition.
2. To increase referrals into diagnostic centers from families of lower socioeconomic and minority group membership.
3. To identify handicapped infants and young children among lower socioeconomic classes and minority groups in inner city and rural areas.
4. To increase referrals into existing infant and child treatment programs.

5. To increase the caregiver's awareness and knowledge of their infants' and children's health status and/or deficits.
6. To determine more accurate incidence rates of handicapping conditions among lower class innercity and rural minority group populations.
7. To document the need for any additional intervention services needed for this population.

Development of the Instrument

The major objective of The Baby Book is to reduce the number of unidentified infants and children who are handicapped or developmentally delayed. To this purpose, Colorado State Department of Education under a grant from the Office of Special Education, awarded a subcontract to the John F. Kennedy Child Development Center in Denver, Colorado to develop a simple device for lower socioeconomic caregivers of potential developmental delays and health problems that their children may be experiencing. The decision was made to design a baby book which would be given to the mother at the birth of her child. The book was to be high quality so that the mother would wish to keep the book as a baby album and add pictures of her infant and child as the child developed. The book contains space for birth information on the child. Opposite each blank page where the baby's pictures are placed, are five pictures of children displaying the accomplishment of developmental milestones. The format is designed to present pictures at known times of major developmental accomplishments. The following ages were chosen: 4 months, 6 months, 9 months, 1 year, 1½ years, 2 years, 2½ years, 3 years, 4 years.

Fifty developmental scales were reviewed to select items for each age. Each item was selected by the following criteria:

1. Is accomplished by 95-98% of the infants or children at that age (to reduce over-referrals and minimize anxiety).
2. Could be expressed in written form, free of technical terms.
3. Could be presented pictorially and understood without language.
4. Experts in the field would agree on the item's relevance as a major developmental accomplishment.
5. Was as culture-free as possible (that is, something all children could do; i.e., turn to hear a telephone, but something the parent might not let them do--"draw with crayons").

The following areas were selected to be sampled at all ages possible: gross motor, fine motor, speech, audition, vision, socioemotional, self-help, and health. The health items proved to be too extensive and hard to represent pictorially, so an additional chart on health was placed in the back of the book.

Table I indicates at what age each area is sampled.

The items from the 50 scales were reduced to 260. Consultants in the areas of vision, audition, fine motor, gross motor, general child development, and education, as well as pediatricians and nurses were asked to review each item for its appropriateness. The items were reduced to approximately 75. Minority group parents were interviewed and asked to review the items for social bias. In addition, the photographer was consulted to remove any item which could not be clearly pictorially portrayed.

When the final items were chosen, anglo, black, Oriental and Spanish surnamed people of middle and lower class were asked to have their babies photographed. The final selection of each picture was made following the criteria listed above and attempting to balance the developmental and health areas at each age and representation among the various minority groups.

Under each picture is a sample statement describing the developmental task. The statement is written in English and Spanish.

A sample of 20 mothers were asked to read each statement and to "read" the picture. All pictures appeared to be easily read and the English and Spanish were free of jargon or colloquial expressions which might confuse meaning. At each age, a question is stated to be read by the mother, that if her child cannot do the things pictured, she should call the local special education office or the State Department of Education's toll free number to arrange for the child to be screened.

The Baby Book was designed to be delivered through maternity wards. However, it has been found that visiting nurses can use the book when interviewing mothers about the child's developmental status. The Baby Book can also be used to instruct young people before they become parents about the developmental stages. In our work with young adolescents, it has been found that they greatly underestimate the rate of infant growth. Thus, these young parents may not identify a real delay by as much as three months due to their faulty knowledge.

It is suggested that the format of The Baby Book be used in multiple settings where a professional wishes to communicate with a parent. The pictures convey the developmental stages of which the parent may not have been aware.

TABLE I

Areas covered at Each Age

	GM	FM	HEALTH	SPEECH	AUD	VIS	S-E	S-H	NOTES
4 mos.	X	X	X	X	X	X	X		
6 mos.	X	X	*	X	X	X	X	X	
9 mos.	X	X	X		X	X	X	X	
1 yr.	X		X	X	X	X	X	X	
1½ yrs.	X	X	X	X	X	X	X	X	
2 yrs.	X	X	X	X	X	X	X	X	
2½ yrs.	X	X		X	X	X	X	X	
3 yrs.	X	X	X	X		X	X	X	
4 yrs.	X	X	X	X	X		X	X	

("X" indicates that the category is covered at the age levels)

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* Health covered in chart in the book.

CORTICAL BLINDNESS IN CHILDREN

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Cortical blindness is the selective involvement of the occipital cortex which leads to the triad symptomatology of blindness, intact pupillary reflex, and normal ophthalmoscopic picture. In cerebral blindness the lesions are more extensive, more anteriorly situated, and it may include cortical blindness (1).

The main factor for damaging the visual cortex is hypoxia; e.g., oxygen deficiency of the tissues which, in severe cases, causes necrosis. In less severe cases there may be partial or complete recovery. The hypoxia may be the result of hypoxia itself, as in cyanosis or asphyxia, or it can be secondary due to circulary disturbances, anaemia, or cytotoxic agents.

In infants all entities responsible for cerebral damage may cause cortical blindness. This includes hydrocephalus, cerebral palsy, subdural haematoma, trauma, degenerative diseases and infections such as toxoplasmosis, cytomegalic virus, staphylococcic, or other encephalomeningitis (2).

Cortical blindness may be described as an unawareness of the patient of the world around, and often he is not aware of his disability - he is blind to his blindness. Visual hallucinations may occur (3). An interesting phenomenon is the viseospatial dysgnosia, mostly observed during the recovery phase. The patient is not able to discern the spatial relationship between himself and his surrounding and of the objects between themselves (4).

Cortical blindness should be differentiated from visual agnosia, where the patient sees the object but is unable to identify it. If cortical blindness is part of cerebral blindness it is associated with mental, motor or other sensory defects (5).

The symptoms described have mostly been recognized in adults; e.g., in persons who had previous visual experience and could describe what happened to them, especially when there was recovery.

In older children symptomatology of cortical blindness is similar to the one described in adults (6).

In infants the clinical course diagnosis and prognosis of cortical blindness of pre-, peri- or post-natal nature is somewhat different of that occurring in adults, due to several factors:

First of all the cortical blindness is mostly part of a more extended cerebral damage. It is really a cerebral blindness. It is often associated with cerebral palsy, mental retardation, or mental deficiency. Furthermore one has to take in account that vision develops in the first years of life under adequate conditions. That means that the retina receives the image which is conducted through the optical pathways to the occipital lobe and is then further processed in the higher centers in the temporal and parietal lobe of the hemispheres. Any damage, even temporarily, of these structures may lead to permanent visual disability, even if there is recovery from the underlying cause. For these reasons it is also difficult to differentiate clinically between cortical blindness, visual agnosia, spatial dysgnosia, and superimposed developmental amblyopia.

Suspicion that a child does not see is usually raised by its parents or the pediatrician in the first weeks of life; earlier if there are other affections of the central nervous system or the eyes; later, if the child seems to develop adequately and the eyes look normal. Ophthalmological examination of the child reveals the following symptoms: The child does not react to visual stimulus, does not show any signs of recognizing familiar faces or objects. Often it seems to look at something with wide open eyes with a funny empty look. Follow movements of the eyes or the head to moving objects are absent. There is no blinking reflex to bright light or threatening gestures. Older children who are mobile, crawling or walking, never seem to bump into obstacles though they do not recognize them. They sometimes reach to touch them for recognition. Pupils react to light, sometimes somewhat sluggishly. The fundus of the eyes are normal. Sometimes there is pallor of the discs, especially, as Walsh and Hoyt pointed out, if the damage occurred pre- or perinatally. There is no nystagmus. Optokinetic nystagmus cannot be elicitated. Electrophysiologic examinations show a quite normal electroretinogram. The visual evoked potentials, i.e., the visual evoked response (VER), is pathologic or absent. If there is a higher lesion only then the VER may be nearly normal.

If cortical blindness is diagnosed all necessary clinical, neurological, and laboratory investigations should be done. Sometimes signs of cerebral palsy or mental retardation appear later. The child should be under the special care of the personnel involved in the medical, educational, and rehabilitation programme. Visual stimulation by the parents or teachers should always be encouraged. The child should learn to recognize the surroundings and learn orientation by touch and movements, as a blind child, and try to connect this if possible with the visual appearance of the object. Visual evoked response should be repeated to verify if there is any sign of recovery although this is not conclusive. It may be mentioned here that sometimes late maturation of vision is diagnosed as cortical blindness, but the VER which is present will progress to full recovery, and the clinical course will correct this diagnosis.

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(Note: Case reports and a film were presented to illustrate the various aspects of cerebral blindness.)

PERINATAL ASPECTS OF CHILDHOOD BLINDNESS IN ISRAEL

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The following study was made to determine the prevalence and causes of blindness and partial sight in children in Israel, age zero to 6 years.

Information as to the number of blind and partially sighted children was gathered by polling questionnaires sent to the parents and by reviewing medical records. 300 of 382 registered cases are reviewed.

Visual acuity figures and causes of visual loss are in all cases based on an ophthalmologist's examination. All of the children, including all of those with multiple defects, were also examined by an obstetrician, pediatrician, and neurologist. For this study, the World Health Organization Definition of Blindness was used (corrected visual acuity of 6/60 or less in the better eye, or a visual field of 20 degrees or less in the better eye). Partial sight is defined as corrected visual acuity from 6/18 to 6/60 in the better eye.

The distribution of parent's country of origin was 184 (61.3%) Sephardic Jews, 42 (14%) Ashkenazi Jews, and 74 (24.6%) Israeli-born parents. Families were screened for various medical disorders, including hypertension, diabetes, peptic ulcer, asthma, cancer, rheumatic fever, and retinitis pigmentosa. Smoking occurred during pregnancy in 66 (22%) of the cases. No cases of alcohol consumption were encountered.

Most deliveries (86%) were at term (37-42 week gestation), with 14% preterm deliveries (37 weeks gestation). Mode of deliveries was as follows: 82.5% spontaneous deliveries, 6.6% vacuum deliveries, 4.6% forceps deliveries, and 6.3% cesarian sections.

Almost all cases (284 out of 300) of blindness were detected before age of 1 year, the remaining 16 detected between ages 1-5 years. The enclosed table summarizes the etiology and visual acuity in the 300 children included in our study.

We compared the results of our study to those of an American and Finnish study on the same subject. The comparison yielded an extremely interesting observation: whereas in the American and Finnish studies prenatal (hereditary) risks were responsible for 49.9% and 28% (respectively) of the blindness cases studied, in our study hereditary risks were found to be the cause of blindness in 92.8% of the cases studied. Intrauterine infections were the cause in 4.6% of our cases (as compared to 21.8% in the US and 6% in Finland), RLF in 2% (as compared to 7.9% and 14%), tumors in 0.6% (3.7% and 3.3%), and unknown causes in 0% cases (as compared to 33.6% and 30% respectively). We believe that the main reason for this difference lies in the large numbers of marriages between relatives in this country, resulting in an increase in the expression of hereditary traits. In addition, alcohol consumption and drug addiction, two known causes of ocular pathology in the fetus, are virtually nonexistent in our population.

Taking all the above facts into account, we believe that in our population emphasis should be placed on early prenatal screening. This includes, in our era of modern obstetrics, ultrasonography, amniocentesis, and complete chromosomal analysis.

DISTRIBUTION OF 300 LEGALLY BLIND OR PARTIALLY SEEING CHILDREN
BY ETIOLOGY AND VISUAL ACUITY

	PARTIAL SIGHT	LEGAL BLINDNESS	TOTAL
A. HERIDITARY - CONGENITAL.			
ALBINISM - NYSTAGMUS		51	51
ZONULAR CATARACTS	8		8
DOWN SYNDROME (TRISOMY 21)-CATARACTS		4	4
FRIEDREICH'S ATAXIA - OPTIC ATROPHY		10	10
CONGENITAL GLAUCOMA	10		10
MICROPHTHALMOS, ANOPHTHALMOS		26	26
MONOCHROMATISMUS (NYSTAGMUS)	4		4
NEUROFIBROMATOSIS-OPTIC ATROPHY		9	9
SMITH-LEMLI-OPITZ SYNDROME-LENS SUBLUCATION		6	6
SPIELMEYER-VOGI'S SYNDROME-OPTIC ATROPHY		11	11
B. OTHER CONGENITAL			
ANOPHTHALMOS		10	10
CATARACTS	47	19	66
HYDROCEPHALUS-OPTIC ATROPHY	12		12
NYSTAGMUS	13		13
CORNEAL OPACITY	2		2
OPTIC ATROPHY	36	12	48
MACULAR DEGENERATION	10		10
TOTAL	142= (47.3%)	158= (52.7%)	

OCULAR INVOLVEMENT IN THE PRESCHOOL DEAF CHILD

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Pinhas Nemet
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Auditorally and visually handicapped children are a highly heterogenous group. They are labeled as "deaf-blind" children, possessing one of the most frightening and least understood of the handicaps. Such deaf-blind children have a multiplicity of problems which should be identified as multi-sensory deprivation. As the multisensory deprived infant with a combination of auditory, visual, and other problems presents many difficulties and frustrations, the early diagnosis of visual impairment in such cases is very important for obvious reasons.

We wish to report our experience with eighty deaf children examined during the period of 1975-1980, emphasizing the incidence and nature of the various ocular abnormalities.

MATERIAL and RESULTS

A total of eighty deaf children were included in this study. These children were examined in a diagnostic center for interdisciplinary health care. All the children underwent a complete eye examination, including ocular motility evaluation, pupillary reflexes inspection, cycloplegic retinoscopy, and fundus examination. When required, electrophysiological investigations including electroretinography and visually evoked potentials, were performed.

From the eighty deaf children twenty-six were found to present some kind of eye anomalies. The etiology, site, and type of their ocular defects are tabulated in Table 1. The sex distribution was quite evenly divided. About 18% of our cases presented refractive errors and about 10% had squint. The commonest category of congenital causes were prenatal influences of hereditary origin, followed by acquired rubella infection.

DISCUSSION

The early onset of visual impairment in deaf children and its impact on the development of the child call for early detection and immediate referral for further treatment.

The diagnosis of severe visual impairment in suspected deaf infants may be quite easy if the eyes show major abnormalities, such as lack of pupillary response, marked optic atrophy, cataracts, or retinal degeneration. The diagnosis is much harder, however, when the ocular findings are minimal or almost nonexistent. Those we think of as deaf-blind are not only those who are completely devoid of hearing and sight, but also the deaf with a visual defect, the blind with partial hearing, and even partially seeing-partially hearing children.

There is no simple solution to the problems of deaf children who, in addition, may have visual impairment. Recognition of the significant contribution that defects of genetic origin make to the deaf-blind population as a whole is the first step toward the establishment of a competent therapeutic approach, even though it is more of a problem-solving one. Many genetic ocular disorders pose little or no problem in diagnosis. A correct diagnosis applied to a particular ocular disease is sometimes sufficient evidence alone that one is dealing with a hereditary disorder. But before proceeding to genetic counseling, it is imperative that the ocular disorder has been correctly diagnosed, its genetic origin recognized, and its pattern or segregation within the family determined.

Another common cause of deaf-blindness is the rubella syndrome. Such a child may have cataracts, deafness, slow development, heart defects, and small stature. Such children present multisensory deprivation and are often low functioning, present lack of normal developmental drives, and may be mislabeled as mentally retarded. Large scale immunization of the susceptible population against rubella, will hopefully eliminate this cause of severe multisensory deprivation.

Early identification, competent diagnosis, and appropriate intervention are essential for effective educational programming in such handicaps.

SUMMARY

Eighty preschool children with sensory hearing losses were ophthalmologically investigated in order to delineate the frequency and degree of the ocular involvement in such cases. The cause and kind of the eye lesions are described. As auditory handicaps associated with visual impairments cause severe educational problems, the early identification and assessment of the ocular findings are required in order to facilitate their management. It appears that the combination of hearing losses with visual defects, if not adequately corrected may result in multisensory deprivation.

Table 1. Classification of visual impairment by etiology.

	No.	%
Ocular motility		
Esotropia	7	8.75
Exotropia	1	1.25
Eyeball in general		
Myopia	1	1.25
Hypermetropia	5	6.25
Microphthalmos	3	3.75
Albinism	1	1.25
Cornea		
Megalocornea	1	1.25
Astogmatism	9	11.25
Iris		
Heterochromia	1	1.25
Lens		
Cataract	3	3.75
Retina		
Macular pigmentation (rubella)	7	8.75
Peripheral pigmentary degeneration	4	5.00

THE ASSESSMENT AND REMEDIATION OF PIAGETIAN REASONING IN CONGENITALLY BLIND PERSONS

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An analysis of findings which were derived from three sequentially related projects, which sought to assess and program for Piagetian reasoning, are presented and discussed (Stephens and Simpkins, 1974). The first project provided appraisal and analysis of the development of Piagetian reasoning in congenitally blind pupils. The second project served to demonstrate that, through the implementation of individually appropriate intervention activities, reasoning deficits in congenitally blind pupils can be remediated. During the third project an inservice training model was designed and disseminated which trained teachers of the visually handicapped in the assessment and intervention techniques which evolved from the two preceding studies. Overviews are provided for each of the three projects.

The Development of Reasoning in Congenitally Blind Persons

Major objectives of the first study were: (1) to determine if the development of Piagetian reasoning in congenitally blind persons differed from that of sighted persons, and (2) to establish the relationships which exist among measures of reasoning. The random sample (N=150) was comprised of 75 congenitally blind (IQ 90-110) and 75 sighted (IQ 90-110) subjects: the two groups, blind and sighted, were subdivided into three age groups: 6-10, 10-14, 14-18. IQ was determined by WISC or WAIS Verbal Scales.

A total of 26 Piagetian reasoning tasks and subtasks were employed in the study. Adaptation of the reasoning instruments for use with blind persons was accomplished by Simpkins and Stephens (1970). Pilot use of the adaptations had been carried out at the Overbrook School for the Blind and at Temple University. Earlier work by Hatwell (1966) also provided evidence of successful adaptation and use of Piagetian reasoning assessments for work with visually impaired children. The reasoning assessments provided measurement of: (a) conversation, (b) logic-classification, (c) mental imagery/spatial relations, and (d) formal/abstract operations.

Data Analysis

Comparison of the performance of sighted and blind subjects of Piagetian reasoning measures was accomplished through use of the following statistical techniques:

1. Measures of central tendency and dispersion were obtained on all variables;
2. One-way analysis of variance was used to determine if significant differences existed between the performances of the blind and sighted groups on measures of reasoning, and to determine if differences existed among the three age groups of blind subjects and the three age groups of sighted subjects.

Analysis of Blind Subjects' Reasoning Scores

Analysis of variance techniques were used to determine if significant differences existed among the three age groups of blind subjects (CA 6-10, 10-14, 14-18) on measures of reasoning.

When performance of the CA 6-10 age group of blind subjects was compared with that of the CA 10-14 age group, significant differences were found to occur on only 8 of the 26 variables. Comparison of the performance of the CA 10-14 age group of blind subjects with that of the CA 14-18 age group also resulted in significant differences on only eight variables.

To determine if significant improvement did occur when the developmental span was increased, performance of blind subjects in the 6-10 age group was compared with that of subjects in the CA 14-18 age group. With this increase in age span, significant gains in reasoning occurred on 17 of the 26 variables.

Analysis of Sighted Subjects' Reasoning Scores

Comparisons of performance for sighted subjects over three age groups (CA 6-10, 10-14, 14-18) were accomplished by analysis of variance techniques. Unlike findings derived from analysis of scores for the blind subjects, comparisons of CA 6-10 and CA 10-14 sighted groups revealed that the older group performed significantly better on 19 of the 26 variables.

Although comparisons of the CA 10-14 and the CA 14-18 sighted groups yielded significant differences, the older group demonstrated superior performance on only 8 of the 26 variables; these eight included four measures of formal thought, two measures of spatial orientation and mental imagery, and two involving conservation tasks. There is note, however, that near optimum performance was achieved by the CA 10-14 group on 10 variables; therefore, statistically significant increases were not possible. When the CA 6-10 and the CA 14-18 sighted groups were compared, the older group's performance was significantly superior on 24 of the 26 variables.

Comparisons of Blind and Sighted Subjects' Reasoning Scores

Analysis of variance techniques were used to test for significant differences in reasoning scores between the two groups of subjects, blind (N=75) and sighted (N=75) (Table 1). Significant differences were found on 18 of the 26 variables; in each instance the sighted subjects had superior performance. (See Table 1.)

Comparisons of the two groups (blind and sighted) at each of the three age levels revealed significant differences. The two (blind and sighted) CA 6-10 age groups differed significantly on 14 of the 26 reasoning variables; the CA 10-14 age groups differed significantly on 21 of the reasoning variables; and the CA 14-18 age groups on 17 of the 26 reasoning variables. In each instance, scores for the sighted subjects exceeded those of the blind subjects (except for scores obtained by the CA 6-10 blind group on three of the classification sub-tasks, and by the CA 14-18 blind group on one hierarchical classification variable. The superior performance of blind subjects on these classification subtasks may be attributed to the fact that adaptation of the measure for blind subjects (hierarchical classification of real food) proved to be a more elementary task than the original version (hierarchical classification of pictured animals) which was administered to the sighted subjects). In several instances, when performance of the two groups did not differ significantly, two conditions were noted: either the tasks measured initial stages of concrete thought which had been achieved by both groups; or, the tasks required advanced formal or abstract thought, a level generally achieved by both groups.

To examine further the differences between the blind and sighted groups, scores for the CA 10-14 blind group were compared with those for the CA 6-10 sighted group. Even with a 4-year advance in chronological age, the CA 10-14 blind group performed significantly better than the CA 6-10 sighted group on only 4 of the 26 variables (these variables included the previously discussed adaptation of the hierarchical classification subtasks which probably were not as difficult as the original task that was used with the sighted subjects).

When the CA 14-18 blind group was compared with the CA 10-14 sighted group, significant differences were noted on 15 of the 26 reasoning variables. On only two of those did the older blind group have superior performance (and again the significant differences were on the previously discussed subtasks of hierarchical classification). On the other 13 variables the performance of the CA 10-14 sighted group exceeded that of the CA 14-18 blind group.

Additional analysis of reasoning for the two groups was provided through comparison of the performances of the CA 14-18 blind group with the performances of the CA 6-10 sighted group (Table 2). On 19 of the 26 reasoning variables there were no significant differences. The CA 6-10 sighted group performed significantly better than the CA 14-18 blind group on a conservation of volume task (although neither group approached optimum performance). On the remaining six variables where there were significant differences the older blind group's performance was significantly superior, but three of the six involved the previously discussed hierarchical classification task. Excluding these three, the CA 14-18 blind group's performance excelled that of the CA 6-10 sighted group on three conservation measures involving substance and length only. These data served to suggest an overall lag as great as 8 years in the development of reasoning in the blind subjects, and an even greater lag was indicated for the conservation of volume task; in this instance the performance of the CA 6-10 surpassed that of the CA 14-18 blind subjects. (See Table 2.)

Discussion

Comparison of reasoning scores for the total group of sighted subjects with scores for the total group of blind subjects revealed the sighted group had statistically superior performance on 18 of the 26 variables. Superior, but not significantly superior, performance for blind subjects occurred on three subscores of a hierarchical classification task; however, this difference was probably attributable to the previously discussed fact that the measure, as it was adapted for blind subjects, required a lower level of classificatory logic than was required in the original task which was administered to sighted subjects.

Insufficiencies in the operational thought structure of blind subjects were emphasized when performance of the CA 14-18 blind group was compared with the CA 6-10 sighted group. On only 6 of the 26 variables was the performance of the older (CA 14-18) blind group significantly superior to that of the younger (CA 6-10) sighted group. Three of these superiorities occurred on the nonanalogous adaptation of the hierarchical classification task. The other three were conservation tasks which involved concrete thought. Thus, lack of vision and the ensuing curtailment of interaction with objects and people were posited to result in severe deficits in the reasoning processes of the blind. These findings are not unexpected. Blindness reduces the quantity as well as the quality of perceptive data reaching the subject (Hatwell, 1966); as a result, in logical reasoning, which relies heavily on their cognitive structuring of manipulated materials, the blind are seriously handicapped. The severe deficiencies in the reasoning abilities of the congenitally blind subjects serve to underline the necessity for blind persons to have extensive and intensive opportunities to engage in concrete reasoning as they interact with objects and people in ongoing situations.

The Cognitive Remediation of Blind Students

The second study, a training project entitled Cognitive Remediation of Blind Students, (Stephens, Grube & Fitzgerald, 1977) demonstrated the effectiveness of Piagetian-based training in the promotion of reasoning in congenitally blind children; it also provided an educational system for the remediation of reasoning, and developed, adapted, and evaluated instructional modules for blind pupils. The sample of 39 subjects, CA 6-18, IQ 90-110, as measured by the appropriate Wechsler Verbal Scale was drawn from subjects used in the previous study. The 39 subjects were:

1) 13 congenitally blind subjects (treatment group);
2) 13 congenitally blind subjects (nontreatment group);
3) 13 sighted subjects (nontreatment group).

Methodology

Activities designed to remediate individual reasoning deficits were carried out over a 17 month period. Subject's scores on Piagetian reasoning assessments were obtained at the beginning (pretreatment) and termination (posttreatment) of the remediation period. During the remediation phase, teachers of the visually handicapped who had received extensive training in Piagetian theory and assessment, developed individually appropriate reasoning activities which were based on the assessment profiles generated for the blind experimental children (i.e., activities were based on identified cognitive needs). The blind experimental subjects received direct, one-to-one, 45 minute tutorial instruction periods three times a week. The blind control subjects were engaged in their normal day-to-day instructional program without intervention or specialized remediation activities.

Data Analysis

Appropriate nonparametric statistics (Siegel, 1956) were employed on between-group (Mann-Whitney U Test) and within-group comparisons (Wilcoxon Matched-Pairs Signed-Ranks Test). Differences were considered to be significant if they occurred at $p < .05$ level. (See Tables 3, 4, and 5.) Over the 17 month remediation period the congenitally blind pupils involved in remediation activities achieved significant growth on 23 of the 26 reasoning variables; the blind pupils who had only the usual academic training achieved significant growth on 7 of the 26 reasoning variables. When compared with the sighted control subjects over the 17 month period, the blind subjects who received remediation decreased the number of deficit areas from 15 of the 26 to only 3 of the 26 reasoning variables measured by the Piagetian reasoning assessments. Additional support for intervention is provided through the pre- and post-treatment comparison of the blind experimental and blind control subjects on the 26 Piagetian reasoning assessments. The blind experimental subjects' pre-remediation scores were significantly higher than those for blind control subjects on 1 of the 26 variables, whereas their post-remediation scores indicated superiority of 15 of the 26 reasoning variables measured.

Conclusion

Comparison of the two congenitally blind groups on pre- and post-test scores on a Piagetian battery of reasoning assessments indicated that after a 17-month period the treatment group experienced significant gains on 22 of the 26 reasoning variables; the nontreatment blind group achieved significant gains on 7 of the 26 variables. Comparison of the blind treatment group with the sighted nontreatment group indicated that after training the blind treatment group continued to be deficient on only 3 of the 15 previously identified reasoning variables.

The data obtained from this study provides evidence that the blind experimental subjects demonstrated significantly greater gains in cognitive development than did their blind control counterparts of comparable age and IQ who were not provided opportunity to experience the individually designed remediation activities. The findings stress the need to provide the visually handicapped child with a variety of learning activities: activities which require manipulation of objects and which promote reasoning in ongoing situations. Through activities of this type experience can be internalized and cognitive growth achieved.

While maturational growth is an ongoing variable to be considered in the data analyses, the superior performance of the treatment group in comparison to the nontreatment blind group's performance, suggests that the intervention program significantly enhanced the treatment group's reasoning development. It is acknowledged that there were several variables operating within the intervention program that contributed to the increase in reasoning scores. These include: (a) the remediation activities;(b) the process oriented approach implemented by the teacher; and, (c) the general increase in social interaction derived from pupil-teacher contact. Although it was not possible to ascertain the degree of importance of each variable, Piaget has stressed the need for both social and material interaction before normal cognitive potential can be realized. This intervention program was designed to realize the maximum benefit from such interaction. Thus, effective replication of the program would, of necessity, include not only activities that provide opportunity for interaction, but also teachers trained to guide student involvement and to provide situations which foster disequilibrium.

The Piagetian assessments utilized in this study provide detailed appraisal of pupils' reasoning abilities at the elementary and secondary levels. Therefore, a recommendation is made that the assessment tasks be included with other instruments that provide information used in planning the visually impaired pupils' individual educational programs. Intervention programs should incorporate methods that demand activity on the part of the pupil and emphasize the process rather than the products of his thought.

Piagetian Approach to Visually Handicapped Education

Project PAVE, Piagetian Approach to Visually Handicapped Education,, (Stephens & Grube, 1980) was a nationwide in-service training program for teachers of visually impaired children and youth. The project utilized the model of instructional activities and methods devised, implemented, and validated through the previous project, "Cognitive Remediation of Blind Subjects."

Through the project, teachers of visually handicapped pupils were trained to:

1. assess the reasoning abilities of their visually handicapped students,
2. prepare individualized educational plans that address the reasoning needs of each student as identified on that student's assessment profile,
3. develop activities which encourage social and material interaction,
4. reassess the reasoning abilities of the visually handicapped students in order to determine if gains have occurred.

During the 24 months in which the in-service training project was implemented, 17 regional special study sessions were conducted. The sessions were attended by 487 teachers, administrators, and teacher trainers. The teachers of visually impaired children who attended the 5-day summer sessions also attended 2-day Fall and Spring follow-up sessions. The session model proved to be a viable and replicable system for dissemination of the training program. The degree of implementation by teachers following their participation in the session programs served to indicate that the model provided a cost-efficient approach to meeting the in-service training needs of teachers of visually impaired students.

During the training program, teachers had the opportunity to observe demonstrations of developmental appraisal and process oriented teaching strategies (i.e., the emphasis was placed on the thought processes the student employs to solve a problem, rather than the correctness or incorrectness of the responses). Then, under project staff supervision, participants demonstrated their use of assessment and teaching strategies in sessions with children. Prior to the Fall and Spring follow-up sessions, participants engaged in practica experiences in their own schools. During the follow-up sessions individual conferences were conducted with participants to discuss their practica experiences and review their assignments.

Teachers who completed the training program demonstrated proficiency in the administration and scoring of Piagetian reasoning assessments, indicated a practical knowledge of process oriented teaching strategies, and demonstrated skill in programming for a student's reasoning needs.

Implications for Early Education of Visually Impaired Children

Piaget posits that cognitive development proceeds as an individual interacts with his environment. If there is no interaction there is little or no development. Therefore, infants who are congenitally blind must be provided activities which offer interaction type experiences.

At birth the infant is capable of reflexive activity which may be initiated by external stimuli or spontaneously initiated by the child. Except for pupillary reflex, the blind infant engages in the expected early reflexive movements, but his visual impairment restricts his ability to distinguish between objects and events and delays his ability to coordinate his experiences.

Later, these spontaneous bodily acts prove interesting so they are repeated. Example: the child waves his arm and in doing so hits a toy. The act is interesting so he does it again, and through such experiences eye-hand and ear-hand coordination is established. At this point the visually impaired child's experiences differ significantly from the sighted child's. Unless the object comes into direct contact with the visually impaired infant, he/she may never know it exists, and if his touching of an object results in a sound the blind infant may not associate the two. Therefore, even in infancy the visually impaired child has to be motivated to interact with his environment and to move beyond experiencing only those objects, events and persons within his immediate perceptual field. If no activities are provided, this lack of experience and its consequences on behavior can lead to the development of specific deficits which may severely restrict appropriate cognitive development. Adelson and Fraiberg (1974) have provided an excellent analysis of the cumulative deficits experienced by blind infants.

During the child's first year the lack of visual stimulation and resultant loss of incidental learning predispose the child to a significant delay in developing and engaging in purposeful behavior. The major differences in the cognitive ability of a sighted child and a visually impaired child at this level largely are attributable to differences in both the quantity and quality of the child's interactions with objects and events in the environment (Adelson & Fraiberg, 1974). Since the visually impaired child previously has demonstrated deficits in the ability to understand the interrelationships between objects and events he is less likely to generate constructive alternatives in problem solving situations. This means that the child will be less likely to have any specific goal in mind when attempting to work through new situations. There is less potential for the child to perceive, understand, develop and evaluate the variety of complex relationships which exist among the objects in his environment. Inability or delay in developing these abilities severely restricts the child's flexibility of thought and significantly effects the development of higher intellectual functions.

Teachers and parents, as intervenors, must guide the visually impaired child in the location, exploration and manipulation of objects. As they do, there is reminder that the child must experience the self-object interaction - the teacher or parent cannot experience it for him.

As children progress from the sensory motor stage, which is characterized by sensory perception and motor or physical action (and which generally occupies the period from birth to two years), to the pre-operational or preschool stage, language generally is acquired. Language facilitates interaction with people (i.e., social interaction), and supplies labels or symbols for objects with which the child interacts. Vocabulary acquisition should result from the need to label objects, persons and events with which the child has interacted. As we all know, early childhood words are not meaningful if they are not tied to experience. At this stage the child should have many and varied experiences which serve to initiate and enlarge his concepts. For example, he learns, through auditory and tactual experiences, that his "Cocker Spaniel" puppy is a "dog" and is called "dog" because it barks, has hair, four feet, and a tail. Later he should learn that the neighbor's "Collie" also is a "dog", even if the bark is different, the tail longer and the dog larger. Still later, his concept of "dogs" is extended to include the "Poodle" across the street that has short curly hair and still another type bark. The concept of "dog", like other concepts, should evolve from ongoing experience, not memorized words. Through these interactions the child develops a classificatory system. The major group or category is "dog", and "Cocker Spaniel", "Collie" and "Poodle" are subcategories. Structured experiences must be provided which assist blind children in their acquisition of concepts. After experience with real animals or objects they may use toys or models to represent the objects in classificatory activities.

During the pre-operational stage, which generally occupies the years of approximately 2 to 7, children move from matching or pairing of two objects (e.g., finding the two balls in a box of toys) to exhaustive sorting, (e.g., finding all the balls); but if they are asked to find all the little balls, they, in effect are being requested to deal with two criteria simultaneously: shape (balls) and size (little), and they may not be developmentally ready to do so.

Other areas of reasoning also are developing. Constructive play provides opportunities to explore causal relationships. Example: when building a tower of blocks, they find after repeated attempts that one block must be placed precisely on top of the previous one or it will topple off. Discovery of the necessary relationship requires exploratory type activity.

Although the preschool interaction type programs may appear to be much like traditional programs, Kamii and DeVries (1973) noted three important differences:

1. The Piagetian approach emphasizes thinking and acting; objects are used because they provide opportunities for thinking, finding ways to solve a problem, to observe similarities, differences, and relationships, to experience and structure space. Group games are important becuase through the interaction they afford children opportunity to coordinate points of view, decide on strategies and compare results.
2. The teacher is responsible for creating an environment in which children initiate their own activities. To do this the teacher must be skilled in the introduction of the activity, know when to model or demonstrate and when to observe, know when to let the child go through many stages of being wrong, know when to direct the child into finding an answer and when to provide an answer, and to know that all aspects of knowledge are highly interrelated.
3. The teacher should view her role as a presenter of materials, suggestor of activities and assessor of the child's reasoning. She must be able to analyze the child's level of functioning and to respond in ways that encourage the child to extend ideas and concepts. She should lead through questioning, "What if you-----------?", rather than dictating, "Put the block in the middle---".

In a discussion of the early years Melcher (1981) noted:
Jean Piaget said: "The goal of education is not to increase the amount of knowledge but to create the possibilities for a child to invent and discover." That is what Anne Sullivan provided for Helen Keller. The professional tasks, today, remain the same: to "find" the children with special needs, to provide a stimulating workplace, and to teach and guide the children toward self-realization and knowledge. Young handicapped children with aroused and directed energy will grow to reach their real potential with good teaching (Melcher, 1981 p. 225).

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Footnotes

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Table 1. A Comparison of Reasoning Scores Total Groups of the Blind (N=75) and Sighted (N=75) Subjects

Variables	Blind Subjects		Sighted Subjects		
	$\overline{X}$	SD	$\overline{X}$	SD	F[a]
One-for-one exchange	9.53	2.37	11.45	1.51	34.96[b]
Term-to-term correspondence	22.16	4.67	24.95	6.82	8.53[b]
Conservation of liquid	15.27	7.15	18.76	4.10	13.46[b]
Conservation of length	9.47	7.60	17.91	7.25	48.44[b]
Conservation of length (rods)	16.65	7.01	18.11	5.35	2.04
Conservation of substance	15.64	7.50	17.40	5.64	2.63
Dissolution of sugar (substance)	7.97	3.46	9.01	3.39	3.45
Sissolution of sugar (weight)	5.35	3.70	8.76	4.25	27.53[b]
Conservation of weight	12.81	8.33	17.17	7.23	11.72[b]
Conservation of volume (1-3)	5.71	3.97	15.00	6.14	121.30[b]
Intersection of classes	18.15	3.96	21.11	5.54	14.19[b]
Class inclusion (beads)	1.04	1.56	3.88	4.65	25.14[b]
Classification (3)	16.40	3.71	17.48	7.56	1.23
Classification (4)	26.44	7.78	24.16	9.75	2.51
Classification (5b)	4.29	1.66	3.92	6.98	.20
Changing criteria	1.81	.87	2.76	2.37	10.56[b]
Rotation of beads	18.05	4.98	23.13	4.96	39.17[b]
Rotation of squares	2.03	1.44	3.80	2.77	45.22[b]
Changing perspective (mobile)	14.27	7.30	25.67	13.31	42.30[b]
Changing perspective (stationary)	18.92	9.37	31.88	11.38	57.98[b]
Combination of liquids (chemistry)	2.49	.53	2.96	2.18	3.25
Dissolution of sugar (volume)	1.91	1.56	4.21	4.86	15.32[b]
Dissociation of weight and volume	23.05	11.85	35.83	16.55	29.54[b]
Conservation of volume (4)	5.59	4.44	11.37	11.66	16.15[b]
Classification (5a)	2.40	2.00	1.97	2.07	1.65
Transfer from two to three dimensions	6.47	1.88	8.87	8.47	5.74[c]

[a] df 1, 48

[b] $p < .05$.

[c] $p < .01$.

Table 2. A Comparison of the Reasoning Scores of Blind Subjects Aged 14-18 (N=25) and Sighted Subjects Aged 6-10(N=25)

Variables	Blind Subjects		Sighted Subjects		
	$\overline{X}$	SD	$\overline{X}$	SD	F[a]
One-for-one exchange	10.32	1.70	10.56	2.36	.17
Term-to-term correspondence	23.64	3.39	21.96	6.26	1.39
Conservation of liquid	19.04	4.86	16.64	5.99	2.42
Conservation of length	12.04	7.54	11.72	7.93	.02
Conservation of length (rods)	19.36	4.58	14.32	7.44	8.31[b]
Conservation of substance	19.44	3.65	13.04	7.91	13.50[b]
Dissolution of sugar (substance)	10.80	1.85	6.12	3.37	37.06[b]
Dissolution of sugar (weight)	6.00	4.40	7.08	4.18	.79
Conservation of weight	16.72	6.87	13.04	7.58	3.24
Conservation of volume (1-3)	6.32	4.18	12.40	7.78	11.85[b]
Intersection of classes	19.56	3.06	19.88	5.49	.06
Class inclusion (beads)	1.76	1.85	2.52	1.81	2.16
Classification (3)	17.88	3.53	12.48	4.53	22.12[b]
Classification (4)	31.40	5.28	17.68	8.60	46.19[b]
Classification (5b)	5.32	1.11	2.36	2.23	35.23[b]
Changing criteria	2.16	.80	1.92	.86	1.04
Rotation of beads	19.20	5.07	20.96	5.25	1.46
Rotation of squares	2.56	1.69	2.44	1.19	.08
Changing perspective (mobile)	16.64	7.82	15.00	8.08	.53
Changing perspective (stationary)	20.08	8.78	21.48	8.89	.31
Combination of liquids (chemistry)	2.52	.59	2.20	.58	3.78
Dissolution of sugar (volume)	2.32	2.04	2.60	1.94	.25
Dissolution of weight and volume	28.52	15.81	28.52	14.07	.00
Conservation of volume (4)	6.96	6.55	8.28	9.38	.33
Classification (5a)	3.00	2.20	1.04	.20	19.71
Transfer from two to three dimensions	7.68	1.52	7.72	1.29	.01

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[a] df 1, 48

[b] $p < .05$.

[c] $p < .01$.

Table 3. Pretaining Comparison (Using Mann-Whitney U Test) of Reasoning Scores for Sighted Subjects (N=13), Blind Treatment Subjects (N=13) and Blind Control Subjects (N=13)

Variables	Sighted Group $\bar{X}$	Blind Treatment Group $\bar{X}$	2-Tailed Sig. Val. p	Sighted Group $\bar{X}$	Blind Control Group $\bar{X}$	2-Tailed Sig. Val. p	Blind Control Group $\bar{X}$	Blind Treatment Group $\bar{X}$	2-Tailed Sig. Val. p
One-for-one exchange	11.92	10.69	.004	11.92	9.08	.001	9.08	10.69	.246
Term-to-term correspondence	26.38	22.85	.012	26.38	20.46	.004	20.46	22.86	.301
Conservation of liquid	20.85	15.77	.047	20.85	13.46	.008	13.46	15.77	.500
Conservation of length	20.15	13.00	.005	20.15	8.08	.000	8.08	13.00	.149
Conservation of length (rod sections)	21.00	17.77	.015	21.00	17.15	.072	17.15	17.77	.510
Conservation of substance	20.62	16.00	.032	20.62	15.23	.052	15.23	16.00	.956
Dissolution of sugar (substance)	9.77	7.77	.152	9.77	7.77	.096	7.77	7.77	.979
Dissolution of sugar (weight)	9.46	7.08	.129	9.46	4.85	.004	4.85	7.08	.128
Conservation of weight	19.46	14.54	.103	19.46	12.92	.003	12.92	14.54	.417
Conservation of volume (1-3)	15.77	7.62	.006	15.77	8.46	.017	8.46	7.62	.913
Intersection of classes	20.38	19.46	.392	20.38	17.23	.084	17.23	19.46	.270
Class inclusion (beads)	3.62	2.15	.033	3.62	.92	.000	.92	2.15	.088
Classification (3)	19.54	16.77	.062	19.54	14.31	.030	14.31	16.77	.367
Classification (4)	27.31	28.77	.468	27.31	28.38	.534	28.38	28.77	.917
Classification (5b)	3.92	4.69	.496	3.92	4.23	.915	4.23	4.69	.350
Changing criteria	2.69	2.38	.344	2.69	1.85	.007	1.85	2.38	.100
Rotation of beads	22.85	22.15	.538	22.85	18.38	.016	18.38	22.15	.046
Rotation of squares	4.23	2.77	.023	4.23	2.38	.002	2.38	2.77	.644
Changing perspective (mobile)	34.08	16.38	.002	34.08	13.69	.000	13.69	16.38	.875
Changing perspectives (stationary)	37.46	21.92	.004	37.46	13.69	.000	13.69	21.92	.067
Combination of liquids (chemistry)	2.92	2.38	.050	2.92	2.31	.024	2.31	2.38	.899
Dissolution of sugar (volume)	3.69	2.38	.110	3.69	1.54	.007	1.54	2.38	.270
Dissociation of weight and volume	40.23	23.85	.006	40.23	23.92	.006	23.92	23.95	.568
Conservation of volume (4)	16.31	6.15	.032	16.31	6.85	.196	6.85	6.15	.180
Classification (5a)	2.69	3.00	.704	2.69	2.23	.910	2.23	3.00	.802
Transfer from two to three dimensions	11.38	7.46	.000	11.38	5.69	.000	5.69	7.46	.098

Table 4. Post-training Comparison (Using Mann-Whitney U Test) of Reasoning Scores for Sighted Nontreatment Subjects (N=13), Blind Treatment Subjects (N=13) and Blind Nontreatment Subjects (N=13)

Variables	Sighted Group $\bar{X}$	Blind Treatment Group $\bar{X}$	2-Tailed Sig. Val. p	Sighted Group $\bar{X}$	Blind Control Group $\bar{X}$	2-Tailed Sig. Val. p	Blind Control Group $\bar{X}$	Blind Treatment Group $\bar{X}$	2-Tailed Sig. Val. p
One-for-one exchange	11.62	11.62	.613	11.62	10.00	.010	10.00	11.62	.009
Term-to-term correspondence	25.69	26.62	.173	25.69	24.46	.330	24.46	26.62	.028
Conservation of liquid	20.46	20.77	.548	20.46	15.62	.056	15.62	20.77	.020
Conservation of length	20.23	20.38	.654	20.23	12.15	.004	12.15	20.38	.002
Conservation of length (rod sections)	20.77	20.92	.518	20.77	17.00	.158	17.00	20.92	.056
Conservation of substance	20.62	20.31	.550	20.62	17.31	.079	17.31	20.31	.204
Dissolution of sugar (substance)	11.15	10.92	.615	11.15	8.77	.051	8.77	10.92	.031
Dissolution of sugar (weight)	9.85	9.62	.886	9.85	6.46	.061	6.46	9.62	.049
Conservation of weight	20.23	20.38	.945	20.23	17.85	.084	17.85	20.38	.100
Conservation of volume (1-3)	16.85	18.38	.486	16.85	11.00	.032	11.00	18.38	.012
Intersection of classes	21.77	21.00	.737	21.77	19.15	.141	19.15	21.00	.250
Class inclusion (beads)	3.77	3.54	.307	3.77	1.85	.007	1.85	3.54	.049
Classification (3)	20.46	21.69	.464	20.46	16.08	.012	16.08	21.69	.001
Classification (4)	26.54	33.62	.355	26.54	31.23	.733	31.23	33.62	.124
Classification (5b)	4.38	5.31	.202	4.38	4.77	.890	4.77	5.31	.176
Changing criteria	2.92	3.00	.317	2.92	2.54	.064	2.54	3.00	.015
Rotaion of beads	23.54	21.46	.265	23.54	22.08	.379	22.08	21.46	.823
Rotation of squares	5.31	3.38	.003	5.31	2.54	.000	2.54	3.38	.128
Changing perspective (mobile)	35.38	26.15	.072	35.38	18.38	.002	18.38	26.15	.072
Changing perspectives (stationary	40.62	30.77	.031	40.62	20.23	.000	20.23	30.77	.027
Combination of liquids (chemistry)	3.08	2.92	.644	3.08	2.08	.000	2.08	2.92	.009
Dissolution of sugar (volume)	4.00	4.08	.956	4.00	1.92	.021	1.92	4.08	.018
Dissociation of weight and volume	42.92	47.38	.538	42.92	30.38	.054	30.38	47.38	.045
Conservation of volume (4)	16.15	19.00	.511	16.15	10.31	.170	10.31	19.00	.051
Classification (5a)	3.62	4.85	.170	3.62	3.08	.526	3.08	4.85	.048
Transfer from two to three dimensions	11.46	9.08	.007	11.46	6.92	.000	6.92	9.08	.052

Table 5. Pretraining-Post-training (Using Wilcoxon Matched-Pairs Signed-Ranks Test) of Reasoning Scores For Blind Control Subjects (N=13) and Blind Treatment Subjects (N=13)

Variables	Blind Control Group (Pretraining) $\bar{X}$	Blind Control Group (Posttraining) $\bar{X}$	2-Tailed Sig. Val. p	Blind Treatment Groups (Pretraining) $\bar{X}$	Blind Treatment Groups (Posttraining) $\bar{X}$	2-Tailed Sig. Val. p
One-for-one exchange	9.08	10.00	.110	10.69	11.62	.028
Term-to-term correspondence	20.46	24.46	.023	22.85	26.62	.005
Conservation of liquid	13.46	15.62	.249	15.77	20.77	.043
Conservation of length	8.08	12.15	.107	13.00	20.38	.012
Conservation of length (rod sections)	17.15	17.00	.787	17.77	20.92	.043
Conservation of substance	15.23	17.31	.673	16.00	20.31	.028
Dissolution of sugar (substance)	7.77	8.77	.103	7.77	10.92	.006
Dissolution of sugar (weight)	4.85	6.46	.124	7.08	9.62	.050
Conservation of weight	12.92	17.85	.025	14.54	20.38	.021
Conservation of volume (1-3)	8.46	11.00	.208	7.62	18.38	.004
Intersection of classes	17.23	19.15	.214	19.46	21.00	.176
Class inclusion (beads)	.92	1.85	.106	2.15	3.54	.028
Classification (3)	14.31	16.08	.114	16.77	21.69	.003
Classification (4)	28.38	31.23	.021	28.77	33.62	.002
Classification (5b)	4.23	4.77	.500	4.69	5.31	.138
Changing criteria	1.85	2.54	.018	2.38	3.00	.043
Rotation of beads	18.38	22.08	.017	22.15	21.46	.314
Rotation of squares	2.38	2.54	.753	2.77	3.38	.248
Changing perspectives (mobile)	13.69	18.38	.120	16.38	26.15	.034
Changing perspectives (stationary)	13.69	20.23	.019	21.92	30.77	.046
Combination of liquids (chemistry)	2.31	2.08	.109	2.38	2.92	.028
Dissolution of sugar (volume)	1.54	1.92	.500	2.38	4.08	.018
Dissociation of weight and volume	23.92	30.38	.053	23.85	47.38	.002
Conservation of volume (4)	6.85	10.31	.109	6.15	19.00	.008
Classification (5a)	2.23	3.08	.208	3.00	4.85	.046
Transfer from two to three dimensions	5.69	6.92	.025	7.46	9.08	.008

*RELEVANT SOCIOLOGICAL ASPECTS FOR THE IDENTIFICATION AND DETERMINATION OF THE NEEDS OF THE BLIND CHILD AND OF HIS FAMILY.

Yolanda Noemi Penerini
(Argentina)

The relatively high frequency in the ophtalmo-pediatric practice of children with deseases leading to definitive partial or total loss of vision awakened our interest in the study of the social consequences of this severe handicap in Argentina. The final aim of the study was to collect valuable data useful for the elaboration of plans concerning the visual health of the population in general. Previous statistical studies showed that the main causes of blindness in our country are genetic and traumatic, that is, apparently inevitable. Starting from this fact, it was considered of relevant importance to determine the social consequences of the blindness by studying the attitude of the members of our community toward the blind people. A sample of 240 persons was studied, divided into 6 subgroups. These samples were subject by means of polls to the formulation of direct and indirect questions involving simultaneous handling of diverse variables. In the sub-group composed of parents of blind children the analysis emphasized on the answers to questions related with the supposed origins of the blindness, "ages" related to blindness, possibilities of education of the blind child, prejudices, relationship between blindness and emotional aspects, relations between blindness and certain attitudes and socialization. The data obtained through this study suggests: 1) The need of genetic information, through specialized personnel, given to the parents of blind or severely visually handicapped children. 2) That the information given to the public must be in accordance with the cultural traditions of the different groups. 3) That all of the persons dealing with the blind or severely visually handicapped child must be interviewed to be given accurate advice about the social integration of the blind child.

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GENESIS AND THERAPY OF STEREOTYPES, SELFDESTRUCTIVNESS, AND OTHER UNDESIRED BEHAVIOURS BY BLIND, MULTIPLY-HANDICAPPED CHILDREN IN A FAMILY SITUATION

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In the following, I want to speak on "undesirable ways of behaviour" of visually and multiply-handicapped children on their origins and causes as well as on strategies, possibilities and limits when this behaviour is treated and tried to be controlled at home. There is in this field of activity an enormous confusion of terms. The concepts of "secondary disturbances", "mannerisms" and "blindisms" are often used and mixed up when referred to identical ways of behaviour. Therefore it appears useful to me, first of all to apply the term "undesirable behaviour" to the manifold ways of behaviours which include selfdestructive behaviours, aggressions against other persons, stereotypes, tics, passivity, etc.

As an operate definition, we want to understand by "undesirable behaviour" that

1) it disturbs the environment
2) it isn't harmful for the child itself in that way that - either the child is absorbed by this behaviour so that it is able to develop only few altervative ways of behaving - or, indirectly it renders the child somehow disliked with the result that it attains less social attention.

Most of these behaviours are operant, orientated towards specific consequences, nevertheless it is important to remember that not every undesired behaviour is identical with a secondary derangement. It is obvious that such kinds of behaviour can be built up and strengthened without being dependent on parental reinforcement.

By secondary disturbances, we want to understand only those behaviours, whose appearances and constant manifestations are dependent on parental reinforcement, i.e., behaviours which are not an unnecessary consequence of the primary handicap of the child. In spite of its obvious pressing importance there is so far a lack of systematic inquiry about the conditions of origins of these derangements and the possibilities of therapy. Whether, and to which extent these secondary disturbances can be treated with at home, has been so far only subject of a few case-studies. Due to these deficiencies there is at first the necessity of analyzing fundamental relations, specially between:

- the kind of the primary handicap
- the degree of retardation
- the existence of alternative behaviour
- the way of care
- the age and the sex
- and the manifestation of specific secondary derangements.

It has furthermore not been clarified sufficiently the extent to which certain ways of behaviour, passing for secondary disturbances and treated therapeutically as such, are not indeed symptoms of organic diseases.

If we consider more precisely the marginal conditions of the behaviours in question, we find four basic patterns to be distinguished.

First pattern: *

1) The behaviour is self-reinforcing; the child finds pleasure in it. One may only think of making noises, or throwing objects. I want to stress, that these behaviours not at all need to be undesired. Anyway additional social reinforcement is not visible or irrelevant - this behaviour may even appear stronger when the child is alone and no negative consequences are to be expected. If we treated such a behaviour with "time-out", it would mean a misinterpretation of the func-

tional chain.

2) The behaviour is being maintained in that the educator reacts in some kind. The stress lies on "in some kind". Often, there is an alternation between positive and negative reactions. Such ways of behaving do not appear when the child is all by itself. It is frequent, that they are consciously directed towards the provocation of the educator, whose reactions are essential. Even punishments may operate in a strengthening way.
3) The behaviour is reinforced in that the child is willing to avoid or put an end to something which is displeasing it. Mostly it occurs when demands or prohibitions are raised and it is not rare that the behaviour becomes gradually more massive. The consequence or punishment set by the educator is carried out voluntarily; it obviously does not contradict the desires of the child. In general, the condition for the child after the behaviour is more agreeable than it was before.
4) Here, the reinforcement consists in the child's ability to cover up feelings of dislike or to work off tensions by its behaviour. We are able to identify such behaviours more easily if:
   a) external reinforcement is of no importance, and
   b) outer causes are not detectable.

   Its manifestation is often vigorous and highly emotional. As for its reason, we discover sickness, pains, boredom and so forth.

What use is there in listing these inducement patterns? I want to put the stress on how essential it is, not to look up in a formula book when selecting a therapeutic strategy, but to deduce these strategy from a functional analysis of the derangement.

Among our population we encounter undesired behaviours with 86% of all the children, i.e., of the 71 children we are caring for, 61 showed at least one secondary derangement. Thus only 10 children were free of such ways of behaviour. We will examine them more precisely later.

What are now the most frequent derangements? 42% of all the children show some kind of self destructive behaviour, of which the following are predominating:

- Beating their face or head with the hand or fist.
- Banging their head against the floor or objects.
- Biting their fingers or hands and
- Less frequent: scratching themselves tightly or beating their body.

If a child was constantly poking its eyes we assigned this to a self-aggressive behaviour only when it occurred excessively and indeed in a self-destructive way.

Usually we ascribe these to stereotypes. They are represented by a total of between 1/3 and 1/2 or nearly all of the children, according to whether milder forms or rarely appearing ways of behaviour are included.

Most frequent with stereotype activities is rocking, swinging or shaking with the arms, as well as twisting the hair. Such ways of behaviour occur often together with a stereotype "grumbling" or other monotonous utterances of sounds. Also very frequently we find children showing stereotyped ways of dealing materials. Here we meet particularly with tapping or other ways of producing sounds as is done by the scratching of objects. Mostly it is a matter of producing any kind of sounds, and to a lesser extent a matter of pure turning or other ways of the monotonous manipulation of materials.

- With about 1/3 of all the children we find passivity. This was identified whenever a child was sitting or lying passively on the floor for more than 30 minutes.
- 18% of the children show aggressions against adults or their parents - most frequently beating, biting and hair-tearing.
- Screaming behaviours as well
  tantrums are manifest with more than 30%.

- Striking is the high quantity of children with sleeping-disturbances, i.e., with a disturbance in falling asleep, nocturnal lying awake for several hours and with a general perturbation of the day-and-night rhythm. This manifests itself with 28% of the children whom we care for.
- 15% of the children regularly refuse the meal which is offered to them. Those children refuse coarse food or have very special, limited preferences for some kind of food.
- With 42% of the children we observe an unusual massive resistance against the contact with new, non-familiar materials, even if presented sympathetically. Just as many, react in the same way violently to unknown persons.

If we consider the total of secondary disturbances we usually do not find any significant differences between boys and girls. Within some particular domains however, the boys are represented overproportionally: this is the case with the behaviour of screaming, aggressions against other persons and the resistance against unacquainted persons. As to what screaming and aggressions against other persons is concerned, it might be possible to speak of an expected result, of a typically manly behaviour. To be honest, we have not found yet a satisfactory interpretation for these striking differences. We have to see, that nearly every child if at all being able to show any active behaviour, also shows undesired behaviours.

On examining the new appearance or the incidence of secondary disturbances, it is indeed in some way shocking to notice that the six-years old children manifest almost a double amount of single derangements than the three-years old children. It's 4 to 2 single behaviours on average.

Looked at more closely, children that show secondary derangements can be described by the following features:

- they hardly understand demands and are thus hardly manageable,
- they have barely the possibility to express desires by means of language or signs,
- the range of alternative ways of behaviour is most limited,
- their mobility is rather weak so that they are dependent on the assistance of others when changing locations.

We can assert that such arrangement of symptoms renders highly probable the occurrence of secondary disturbances. The more deficiencies we find within the above mentioned domains, the more probable is the occurrence of some undesired behaviour. Its specific manifestation seems to be connected with these deficiencies, although at the same time influenced by the way the children are dealt with.

The first trials of an active dealing with the material and personal environment are hardly perceptible with multiply-handicapped children. They are frequently not recognized or misinterpreted by the parents. This in return leads to a loss of learning motivation and to the restriction of adequate communicative efforts of the child. On the other hand - the feedback of the reference person to the undesired ways of behaviour will maintain these and will, not rarely, contribute to their strengthening.

This means for example:

The mother did not react at all when the child expressed some verbalisms but she reacted when the child started head-banging.

Besides we see constantly that the parents of handicapped children simply resign from a certain point of time on. For years they had the hope that their child was to improve sometime in the future. If that was not to come true, a gradual retreat and exhaustion resulted. Their child obtained less stimulation less interest and less love. And this makes its negative reactions understandable.

The described derangements cannot be treated with, by "standardized programs", but demand in each single case an individual therapeutic procedure, an individual analysis of the inducing and stabilizing factors.

My criticism concerns statements of the sort "self-destructive behaviours" can be brought under control by the application of "time-out", or else "extinction" proves true in this or that field.

I think it is most doubtful to recommend this or that behaviour-therapy technique fundamentally, without previous analysis of the specific marginal conditions. We still too often light upon the recommendation of therapeutic strategies after a mere registration of the symptoms. This can be proved.

In my opinion, the application of "time-out" can only be maintained, when it is guaranteed that the child disposes indeed of a sufficient repertoire of accepted ways of behaviour, in order to obtain social feedback. If it does not dispose of this, I will actually punish the child by the application of my therapy, it will obtain objectively less reinforcement, than before. Shifts of symptoms are predictable: The child will almost necessarily have to find out other ways to get any reinforcement. On the other hand, "time-out" is carried out in cases where it has remained totally unclarified, whether the child estimates my presence at all, or where it is not clear whether the child does not experience my punishment as a well done provocation. I am quite certain about the fact that we have in some cases already conditioned ourselves to some averse stimuli for the children. Here, a successful provocation can indeed be the most significant interaction, when the child experiences this with us.

We witness comparatively often the fact that the parents see themselves first of all as "instructors" of their child, and the quantity of the interactions is taking place on a level stressed on output. Almost all contact situations are then interpreted as cost-and-profit questions. Just as frequent are frustrations on both sides. In such cases we have repeatedly made the experience that an interaction free of demands - however difficult it may prove with the first trials - finally brings about a new view of the child for the parents, and will on the other hand reduce the stress the parents had with their daily training sessions.

Within the field of early care we fundamentally do not employ any aversive techniques: The main reason lies simply in the fact that we aspire as the most essential pedagogic aim to the social integration of the child and neither to some doubtful success in the output-orientated field, nor into the direction of social adjustment. In our opinion, an aggressive child is not primarily aggressive, but it lacks adequate ways of behaviour to express its desires for gratification. If I observe its aggressive behaviour attentively, I notice that the child "provokes" the majority of all "social contacts" by means of this very behaviour and thus obtains the quantity of all the gratification. If I ignored or punished this behaviour without building up alternative, behaviour I could be sure, that other once again undesired ways of behaviour would develop.

I would like to dedicate a few sentences to the question about the handling with stereotypes:

As a general suggestion, the basically correct recommendation, to build up or to reinforce alternative behaviours is often heard in this domain. What is neglected in our opinion, is the discriminate observation of a stereotype behaviour as a specific expression of a need for behaviour. We do not believe that it is a random fact, whether a child shows rocking or eye-poking, or scratching-materials, as its particular stereotype. We see in there, the expression of a special need for stimulation in this very sphere.

This suggests to us the consequence, that we will introduce to rocking children vestibular stimulations, that we will try to find out massive visual stimuli for children rubbing underneath their eyes and so forth. The summary would be to treat the stereotype exactly there, where it is manifest.

We all know, that deprivation of stimuli is an essential reason for undesired behaviours especially for stereotypes. So we give stimuli. But frequently, it has to be stated that the offers to the child are on a level somehow "to high" and therefore do not cover its central needs. I.e., it is attempted far too early to activate the child's hand as an instrument of manipulation, without having previously exhausted the entire surface of its body as subject and object to the perception of stimuli.

Far too early, offers are presented to explore different surfaces. According to our observations, children need at first longer experiences with objects as potential instruments of sounds. The structure of surface remains irrelevant for a longer time than it is usually expected.

Now, a few sentences about the parents' readiness to cooperate in this field: In regard to our experiences, the parents' collaboration has to be valued relatively pessimistic, compared for example to practical programs of life care. In all spheres, on an average of about 50% of the "undesired behaviours" were approached. Within the families, the success rate - was located between 50 and 80% of all the derangements.

The domain which showed interestingly enough the weakest therapeutic success was the problem of "sleeping-disturbances". The predominant pattern hereby was comparatively evident: The undesired behaviour, i.e., the awaking was mostly stabilized by intermittent reinforcement of the parents. They took their child to their bed or occupied themselves for hours with it at night. So the potential pattern of reinforcement is obvious, and so is an appropriate strategy of intervention, as e.g., extinction.

The "extinction" of sleeping-disturbances was, within our population, only possible in two cases. Although the parents felt this problem as very alarming and had to experience the disturbances objectively as extremely troublesome which is easy to understand when you know what it means to have only 3 to 4 hours sleep for several years nevertheless they frequently minimized such disturbances. Actually, this can merely be explained by the presumption that the parents didn't have any true hopes concerning a basic solution to the disturbances. In those situations, it is obviously more relieving to deny existing problems. While observing the behaviour patterns, a considerable part of the secondary disturbances should be controllable with a consistent attitude on behalf of the parents. We cannot, however, presuppose this parental consistency, as it is senseless to summon them in their duties. Often, parents are not able to be consistent, due to outer factors. A mother cannot ignore the crying of her child for a long while, when its father has worked on a night-shift or when the neighbours do not admit it - just as little when she is nervously affected. According to our experience, therapeutic approaches fail just because of those apparently simple realities. It is moreover striking that many parents have obviously get accustomed to a certain degree of undesired behaviours. Thus, feebler manifestations of self-destructive behaviours as e.g., biting in one's hand and particularly sporadic stereotypes or tics are not valued at all as worthy for a treatment. "One simply has to live with these." Here, therapeutic offers do not get any echo. Therefore it appears to us as much more promising, not to treat already manifest disturbances but to fight against the origins and to work preventively.

We obtain the key to specific approaches by an analysis of the marginal conditions of the care for those children who, because of their primary disturbances actually ought to show secondary disturbances as well, yet do not. What are the characteristics of this group?

Here we find parents with a realistic valuation concerning the degree of the handicap of their children. They do not have illusionary expectations and show sensitivity for the least progress in their child's development. At the same time, we find these children with an extensive offer of stimulations taking into account their senses. We find these children accepted in their entire character. The demands are appropriate and do not overcharge the child.

On the other hand, I want to emphasize that "love alone is not enough" and that emotionally well supplied children can appear highly deprived, if their remaining senses are not confronted with stimuli in an appropriate way. The two main points for a preventive program therefore must be as follows:

- From the beginning the child has to be confronted with manifold, adequate stimuli.

- From the beginning the social integration of the child should occupy a higher position, than a progress in the sphere of output.

It is therefore my task as a worker in early care to arrange anything possible in order to facilitate a fundamental acceptance of the child by its parents and not to make it more difficult by a permanent stress on output deficiencies. The main point is to create a space in which a relaxed being together, between a mother and her child can be developed.

I am convinced, that only on such a basis we might be able to set appropriate demands without provoking negativistic reactions.

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DEVELOPING FUNCTIONAL PLAY SKILLS IN YOUNG LOW VISION CHILDREN

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Introduction

This paper will discuss the critical importance of development of functional play skills through early intervention programs for the education of young low vision children. The first section will provide a rationale relating play behavior to cognitive development in the child. This rationale is based on theoretical foundations provided in the literature. The second section of this paper will provide recommendations for the development of play programs as well as practical suggestions for the selection of materials and activities to facilitate functional play behavior in young low vision children.

A Rationale Relating Play Behavior to Cognitive Development in Young Low Vision Children

Cognitive development in the child incorporates experiences with the environment and reactions to those experiences into increasingly sophisticated patterns of behavior. Through growth and maturation the child develops the ability to organize experiences, build concepts about the world and incorporate these new thought structures into an expanding repertoire of behavior. Experiences in a wide variety of settings that encompass contact with a multitude of people, objects and events prepare the child to function cognitively through an increased ability to adapt to and learn from new situations. Vision plays a central role in this process of learning and adaptation.

In the normally sighted youngster much learning and adaptation to new situations takes place automatically. The child is assisted in this process by the capacity to synthesize experiences visually. When vision is normal, stimulation impinging on the sensory receptors is reacted to and organized automatically (Barraga, 1977). The child gains in efficiency in adapting to situations and organizing incoming information without assistance. This process, which Piaget refers to as equilibration, is believed a natural drive of the individual to impose order on experiences with the world (Piaget, 1947).

The ability of the child to impose order on a variety of experiences develops over time and is facilitated by observation and imitation of others. In the normally sighted child, incidental learning through observation and imitation of others is a very rich source of concept and cognitive development. The presence of impairment in the visual system affects the ability to take in information from the environment (Stephens, 1972). Incidental learning in the severely visually impaired child is affected as a result of this deficit. This limitation also interferes with the child's ability to observe, model and imitate the behavior of others. These effects of visual impairment affect the child's ability to profit from interactions with the environment.

A child's active interaction with the environment and a variety of objects and people within that environment are essential to cognitive growth and development (Piaget, 1951). During childhood this interaction takes the form of many types of behavior, one of the most significant is that of play.

Play in the early childhood years is usually related to the child's cognitive development as well as to his engagement in an entertaining activity. Garvey (1977) relates the meaningfulness of play behavior to the total development of the child in the following statement:

> Play is most frequent in a period of dramatically expanded knowledge of self, the physical and social world, and systems of communication; thus we might expect that play is intricately related to these areas of growth (p.1).

Play can be viewed not only as a form of fun or entertainment, but as a highly enriching experience. Play involves the child in direct and active interaction with the environment, and is a very fruitful activity in terms of concept and cognitive development. The play behavior of children has been observed and described by many as evolving from simple repetitive actions during infancy into the more complex behavior patterns required in games with rules (Piaget, 1951). Piaget's description of the types of repetitive actions displayed during the sensorimotor period is an example of early play behavior (Piaget, 1951).

Throughout the sensorimotor period the child's play behavior increases in complexity and reveals the ability to take in information from the environment, store it, and retrieve it to plan actions on objects. An example of this ability involves the child's capacity to generate hypotheses as to the intended use of toys by responding with specific behaviors to unique situations and sets of stimuli. The ability to generate hypotheses emerges at about the ninth month of age, is established as a consistent pattern of behavior by the twelfth month of age, and is considered the foundation of functional play behavior. The term functional play behavior relates to the number of different appropriate uses (the generating of hypotheses) the child can employ with each toy in a situation (Kelazo & Kearsley, 1980). Observation of children at play with peers and a variety of toys reveals information about the experiential background and cognitive abilities of the children observed (Zelazo & Kearsley, 1980). The presence of functional play behavior indicates the child's ability to profit from interactions with the environment. When observing visually impaired children, information about the child's ability to use vision in acquiring concepts is revealed. Information about the extent of experiential deprivation imposed by the visual impairment might also be obtained. In this manner, the observation of play behavior can provide an alternative to, or additional information for, traditional forms of assessment used to estimate the child's experiential background and cognitive capacity levels (Zelazo & Kearsley, 1980).

There is very little information available on the play behavior of young low vision children. Information that is available indicates a qualitative and quantitative difference in the play behavior of young visually impaired children when compared to their normally sighted peers (Warren, 1977). Tait (1972) conducted a study on the play behavior of children she referred to as legally blind. The children ranged in age from four through nine years of age. Results indicated a qualitative difference in the play behavior of the visually impaired children and their normally sighted peers. On the basis of her results, Tait concluded that play behavior in young severely visually impaired children should be considered as essential to their cognitive development and considered as a critical element in the intellectual development of the child. She also recommended that educators of visually impaired children facilitate play behavior in order to foster concept development and the acquisition of adaptive skills to improve learning behavior in the classroom and adjustment to everyday life situations.

The majority of the literature on play behavior in visually impaired children has been reported on the activity of totally blind children. Very little information is available on the play behavior of young low vision children. Low vision children are those who encounter difficulty in using vision in approaching learning tasks or in readily acquiring information from the environment through the use of the visual sense (Barraga, 1976). Use of vision is a learned function. Research has demonstrated that low vision children can learn to use their vision and to increase efficiency in visual functioning (Barraga, 1967). A good way to encourage use of vision and increase the child's capability to function visually is to encourage the child to interact with the people and objects in the environment through play activities.

Early interaction between parent and child is essential to the growth and development of the child. This early interaction creates bonds that affect the child's behavior throughout life (Ainsworth, 1969). The essential role of parent-child interaction throughout the early years of life is highlighted in the early childhood literature. Play activities can provide a natural and stimulating avenue for the enhancement of parent-child interaction in the home. Parents can be the best teachers of their children. They have the most in-depth knowledge of the child and can best select the toys and activities that would stimulate interaction and interest on the part of the child. With the assistance of a professional educator with in-depth knowledge of the child, the parent-educator team can organize play activities for the home and school that will enhance the concept and cognitive development of the child. The educator can lend information on the selection of activities or toys that match the child's developmental readiness skill level. Together, parents and educators can develop play programs that enhance total educational programming for the young low vision child.

Summary

The value of play activity as a fruitful endeavor for the acquisition of concepts and the cognitive development of the child has been highlighted. The effects of severe visual impairment on the child's motivation and capability to become actively involved in interaction with and exploration of the environment has been discussed. This discussion has underlined the critical importance of functional play behavior as it relates to the acquisition of concepts and the cognitive development of low vision children. The following sections of this paper will provide suggestions and recommendations to parents and teachers on the development of play programs to facilitate the acquisition of functional play skills in young low vision children. Topics will include: a) the role of play in learning, b) appropriate use of objects, c) selection of activities, d) examples of activities, e) guidelines for the selection of toys and objects, and f) parental guidelines for developing play activities in the home.

Recommendations For The Development of Programs to Facilitate Functional Play Behavior in Young Low Vision Children

The Role of Play in Learning

Learning is the change that takes place in observed behavior that results from the experiences of the individual. Learning is enhanced through diversification of the experiences encountered by the individual. It is extremely important for the young low vision child to encounter a wide variety of experiences in order to facilitate learning. Interaction with the environment facilitates this learning.

Much information about the ability levels of children can be obtained through the observation of their behavior. One important type of observable behavior is that of play. Play is the active interaction of the child with objects and others in the environment through self-initiated actions that are associated with the individual's creativity, problem solving, and pursuit of learning (Garvey, 1977).

Play activities can facilitate cognitive development in the child through appropriate use of objects. Normally sighted children pick up many of their play skills and behavior patterns through observation, modeling, and imitation of others. Much of this learning takes place incidentally and automatically as the child observes objects and the activities of others in the environment. The low vision child misses out on much of this incidental learning. Therefore, it is important to intervene early in life to actively teach the low vision child functional play skills. The following information is presented to provide recommendations for actively teaching the child functional play skills. One of the first considerations in fostering functional skills is the appropriate use of objects by the child. Here are some points to keep in mind.

Appropriate Use of Objects

1. Always introduce an object or toy that is new to the child by thoroughly exploring the item with the child and explaining its use through demonstration. Never assume the child's knowledge of how to use the item because the child "has watched you use it".
2. Co-actively move the child through the use of the object by placing your hands on those of the child and using the item together with the child. This is essential for children with delays in motor development.
3. Teach exploratory and information-gathering techniques so that the child can become familiar with effective ways to explore and identify objects. These skills should be transferable to exploration of other new objects. Encourage use of all the modalities in teaching exploration skills: touching, looking, tasting, smelling, hearing.
4. Once the child has had time to become familiar with the new object, prevent preservation of stereotypical actions such as waving, banging, and mouthing by teaching the child to use the more appropriate information-gathering techniques mentioned above.
5. Encourage the child to experiment with objects and to test out new ideas about the use of new items that have been introduced. Once the child displays knowedge of the objects' adult-intended uses facilitate creativity in the use of objects. This really fosters learning and expands concepts.

Remember, the objective of play with objects for the child is to obtain new information. This information derived from interactions with objects forms the basis for:

the development of new concepts,
the expansion of existing concepts,
the diversification of the repertoire of play behavior.

Active interaction produces learning and facilitates development in all developmental dimensions including the cognitive, affective, motor, and social/emotional domains of behavior. Much information about the child's level of capability in each of these developmental dimensions can be obtained from the observation of play behavior.

Once the information is obtained, it can be used to formulate intervention programs to facilitate the child's development in areas of needs. Activities and materials can be suggested to the parent to develop skills areas that are weak or lacking. Play activities provide a relaxed situation for the parent to develop skills as they are interacting with the child in the home. These activities can also foster development of the parent-child relationship and boost the confidence and competence of the parent as teacher of their own child.

The following recommendations are offered to parents and teachers for planning programs to facilitate the development of functional play skills in young low vision children.

Positioning the Child:

- Always speak to the child before touching him to position him, let the child know that you are there and about to work with him.
- Make sure the child is physically relaxed before positioning the child.
- Always place the child in a position that will optimize visual attention and employ all adaptive equipment the child needs to maximize: good head control; good trunk support; placement of feet flat on the surface to facilitate good balance and use of the arms; freedom of arm movement and head movement.
- Always seek the advice and assistance of your child's physical therapist in positioning a child.

Communication with the Child

- Always describe to the child the activities that are about to take place.
- Provide a definite beginning and end to all play sessions in order to structure the child's experience and give closure to the activity.

- Speak slowly and on the child's level.
- Speak to the child at all times about the activities and toys while in play, keep the dialogue going.
- Through the use of language, monitor the concepts the child is acquiring while interacting with the toys. Ask questions that elicit reactions to the objects. In this manner, one can gain insight as to how the child perceives the objects and events presented. This yields information about the child's level of efficiency in visual functioning.
- For the child who is non-verbal, develop alternative means of communication in order to monitor reactions to play situations.
- Remember to keep talking to the child about what is happening even though no response is given.
- Observe his facial expressions and body language carefully.

Daily Routine:

Every child has a need for structure, the daily routine helps to provide structure. There is security in consistency. Many concepts can be developed through a consistent scheduling for the child's activities. The following are just a few examples: time, ordinality, place, expectation of coming events, motivation.
Be consistent in all areas of child care in order to instill security and trust on the part of the child. Consistency in scheduling and carrying out of the following daily events is recommended: dressing, meal times, toileting, picking up and handling the child, tone of voice, emotional responses to the child, enforcement of rules and expectations of the child's behavior.

Guidelines for the Selection of Activities

- Choose activities that:

encourage interaction between you and the child,
encourage language development and communication,
are on a level of difficulty that the child can manage and enjoy,
are interesting and motivating to the child,
foster independence on the part of the child,
encourage the development of skills you would like the child to acquire,
encourage the development of functional skills the child can transfer to other situations.

- When teaching skills, always teach them in the context of the real-life situation in which they will be employed. The following are a few samples:

teaching dressing skills upon rising in the morning, at bath time, when dressing for bed,
teaching eating skills and manners at meal times.

Example of Activities

- Massaging your child provides information about the location and use of body parts. Some examples of massaging activities include:

using systematic small circular motions in stroking the child,
begin with the feet and move up the body,
emphasize large joints and their movements,
use bare hands and a variety of lotions,
use mitts made out of a variety of textures.

- Tactual stimulation of the child can take many forms. The goal is to elicit response to and interaction with the caregiver. Some examples of stimulation activities include:

tickling and stroking the child to encourage laughing and interaction,
use of feathers, mitts of various textures, or other items in the home,
co-active movement with the child, your body and the child's simultaneously to teach motor patterns and to encourage interaction.

- To develop good grasp in the child's hands the following activities are suggested:

pull a string through the child's fingers and palm,
pull a string through the child's fingers and thumb,
encourage grasping of items using the fingers and thumb,
encourage grasp-release action by using clothes pins and a can.

- Play auditory games with the child to develop listening skills. The following are examples of activities:

play the radio and mark rhythm with the child using hands or feet,
place the child's hands on your face and throat and sing and talk together,
vocalize sounds to the child and encourage the child to imitate them,
always provide good language models for the child,
use a home organ or piano to encourage listening and auditory discrimination.

- Arrange a lower drawer in the kitchen full of safe utensils for the child to pull out and use. For instance:

fill the drawer with items that match your regularly used utensils,
have the child pull out the one that matches the one you are using,
teach the child the appropriate name of the item,
demonstrate the proper use of the item while you are using it,
co-actively teach the child to do the same task with the item,
have the child do the task with his utensil as you are doing the same task with yours.

- Facilitate the development of good body-image concepts in the child by playing various games with him. For example:

touch the child's body parts and name them for the child,
ask the child to repeat the name of the part while touching it,
teach the name, location, and movement of each body part,
play Simon says once the child knows enough body parts to succeed.

Selection of Reinforcements:

Through an in-depth knowledge of the child, learn likes and dislikes. Choose reinforcers that are not foodstuffs or candy, these can affect the child's health and interfere with potty training. Encourage reinforcers that develop good skills of independent play activity (for example: good performance brings five minutes with favorite toy). Be lavish with both praise and high expectations for the child.

Guidelines for the Selection of Toys and Objects

- These are some points to consider when purchasing and selecting toys and objects for the development of play activities. Does the toy encourage action? Does it encourage:

action, manipulation, taking apart and putting back together?

- Is the toy practical? Is the toy:

safe to use, easy to handle, easy to clean, very durable?

- Can the toy be used for many purposes?

Will it be of interest to the child for an adequate period of time?
Will other children in the family want to engage in play with the low vision child while using the toy?

- Can the toy stimulate more than one sense?

Select toys that stimulate a number of the senses: hearing, feeling, taste, smell, and movement; any combination thereof.
Select toys that highlight one sense above the others to allow concentration on development in the use of that particular sense.

- Is the toy motivating?

Does the child attain a reward for playing with it?
Is the toy attractive?

- Does the toy stimulate the learning of basic skills? Examples include:

counting skills such as number concepts ordinality,
stacking skills including balance, fine motor control and eye-hand coordination.

- Does the toy deal with real-life experiences to which the skills developed can be transferred? Examples include:

dressing a doll, washing the doll's hair, setting the table, using a tea set.
- The basis for the selection of the toys should be: think of what you want the child to learn, then select toys that stimulate this activity on the part of the child.

Examples of Toys That Can Be Made in the Home
- Film canisters can be filled with seeds or buttons, shake them for noise, match noises of the cans.
- Feather dusters can be used for tickling.
- Mobiles can be made out of any materials available. Use non-toxic paint and be sure to check out the mobile to see if it looks nice from the bottom-up (the view point of the child!).
- Use milk cartons to make building blocks, place seeds inside and fabric coverings outside.
- Drop clothes pins in a can.
- Make a ring stack.
- Use thread spools and paint them, string them on a shoestring.
- Cover spools with different textures of cloth, or glue glitter on them.
- Make rattles out of gourds, place seeds or bells inside them.

Examples of Skills Taught Through Activities in the Home
- Encourage parents about the many skill areas they are developing through the use of just one home-made activity. For example, look at the skills tapped through the following activities. Spools for stringing - this activity develops:

fine motor skills; sequence skills; left to right progression; visual memory and recall; eye-hand coordination; grasp ability; tactile awareness; tactual discrimination; and classification skills (sorting by texture or color).

Graduated Cans - this activity develops:

size relationships, visual discrimination, and fine motor coordination.

Above all, it is essential to encourage parents to play with their children. The interaction with the child and the communication between parent and child is the key factor in fostering development in all developmental dimensions. There is no one perfect toy or activity. There is no magic formula for the alleviation of development lags and concept deficits. The most important element in any child's experience is interaction with the environment and a wide variety of people and objects within it. The development of close human relationships that foster trust and interaction of the child is also essential. The key word is interaction. The child's active interaction is paramount to development in all areas of growth, cognitive, affective, motor, and social/emotional.

Parental Guidelines for Play in the Home
- Make every effort to interact with your child through voice and touch whenever you are engaged with the child. This includes feeding, dressing, changing, going to the store, family outings and all other activities.
- Select real objects to play with whenever possible (real fruit, animals, etc.).
- Set aside adequate time and space for play.
- Provide companionship for your child, yourself as well as other children.
- Provide appropriate tools and play items.
- Recognize the need for frequent changes in play activities and toys. This is for your sake as well as the child's.
- Allow the child to use creativity and to indulge in self-initiated creativity.
- Provide experiences on which to build play activities, go places and do things with the child.
- Create a sense of family, involve all members of the family in play with the child.
- Relax and enjoy the play time.
- Have sessions to teach skills, be sure to have sessions that are not goal-oriented. Remember, it is the interaction that is important.

Conclusion

Few early childhood programs include activities that teach children how to play. Many educators assume that all children have a natural ability to play and to benefit from this activity. The development of programs to actively teach young low vision children play skills would be very beneficial. Play activities can be employed as a fun and natural way to engage the child in activities designed to alleviate and ameliorate developmental delays imposed by visual impairment. These activities also encourage the development of efficiency in visual functioning. This paper has been written to encourage parents and educators to work together as a team to design activities that facilitate the development of functional play behavior in the home and in early childhood education programs.

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CURRICULUM DEVELOPMENT FOR PRESCHOOL VISUALLY HANDICAPPED IN KENYA AND THE IMPLICATION IT HAS ON TEACHER TRAINING

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"His physical maturation, his cognitive development, and his emotional and social growth are all dependent, to some extent, upon the teacher's ability to make the appropriate match between his level of development and the curriculum she provides." (Hunt, 1961, p. 272)

Multiply the foregoing by the number of children in any class and one can easily understand the honor attendant upon the title "mwalimu" (teacher, in Kiswahili). Let us then define the term curriculum as it will be used in this presentation. Curriculum is defined as all those things that the teacher does or provides both to the students and within the learning environment which promotes the learning process.

Bloom (1964) indicates that intelligence is a developmental function and that 50% of the development takes place between conception and age four, 30% between age four and eight, and 20% between ages eight and 17. Experiences which promote cognitive development, traditionally provided by educators, may be the most important variable in a child reaching and realizing his/her intellectual potential. How much more important is this type of opportunity for children experiencing the sensory deprivation of a severe visual loss?

The necessity of early stimulation and training for the handicapped preschooler has been well documented in the literature for well over a century. The literature in the area of the Education of Visually Handicapped Children supports the notion that with proper experiences of a stimulating nature (Halliday, 1970), development need not be delayed (Ashcroft, 1965) (Scholl, 1975).

The purpose of this presentation is to describe the structure and strategy of an experimental curriculum for preschool blind children who reside in Kenya and attend or will attend preschool classes set up expressly for delivering an appropriate, stimulating preschool curriculum. However, it is necessary to develop an understanding about the capability of a developing country such as Kenya, to provide such specialized services to a small incidence group of children.

Unlike countries experiencing high technological productivity, developing countries appear to have different economic and political priorities to contend with in order to provide basic services in health and education. Hard choices must be made and only the most important activities can be supported by the limited financial base. The author submits that trends in most developing countries (not all) could be described as follows:

1. Government money is low or non-existent for Special Education because the major emphasis is in providing universal primary education. (As inflation and the school population increases, financial support for small incidence groups will diminish.)
2. Historically, many of the facilities in which handicapped children are educated have been funded and run by non-governmental agencies, both foreign and domestic. The worldwide inflationary condition would make one believe that non-governmental agencies will continue to contribute large amounts of support as governmental funds may become more scarce.
3. It is difficult to find a highly qualified and trained teacher with preschool blind children. There are many reasons for this, a few being that as soon as a teacher is trained, he/she finds him/herself placed in upper primary classes because it is considered higher status; in some cases the government will not pay

preschool teachers; many times the teacher, now trained, will be placed in an administrative position, governmental or teacher training position. People teaching preschool classes for blind children, for the most part, will continue to be untrained personnel.

5. Preschool curriculum, in many cases, is either non-existent or unusable (geared for a trained teacher, inappropriate for the region or culturally insensitive). Traditionally, curriculum is developed by professionals teaching in the classrooms, reflecting the goals and culture of the people in the region. With few trained professionals in the classroom, curriculum development will continue to be a major unsolved problem.

Let us examine a typical progression which might result in the formation of an effectively managed blind preschool. First, a residential or day school for blind children is built. After all primary classes have been instituted and established, the idea for a preschool class is discussed. Next, a non-governmental agency might build the classroom and/or dormitory necessary to house the children. The school administrator is then faced with the dilemma of finding a teacher. In many cases an untrained school leaver is hired to teach the class because the price is right and no trained teachers are available anyway. Finally, neither the school administrator nor the new "teacher" has any idea as to what an appropriate curriculum might be for blind preschoolers. Hopefully, a non-governmental agency would place a foreign trained teacher in that setting in order to administer on-the-job training for the untrained teacher. After a few untrained teachers are inserviced curriculum development will commence in concert with the concerned governmental agency.

If the previous progression is followed, appropriate curriculum will not be developed in developing countries (most) during the next decade. Visitation to preschool classes provides evidence to support the fact that despite the deep desire to do an effective job with preschool blind children, most school time is taken up with singing, praying, "free play" and naps (Fichtner, 1980). The amount of time devoted to directed activities designed for cognitive/language development, large muscle development, orientation and mobility skills appears to be minimal and if it does occur, it is not part of an ongoing stimulation program which provides a context and adequate practice to actually develop a skill which was not a part of the child's repertoire previously.

It is my contention that curriculum should be developed specifically with the untrained teacher in mind. The goal would be to provide appropriate stimulation for the preschool child who is visually handicapped through the development of daily lesson plans in three different areas of concern: cognitive/language development, gross motor development and orientation and mobility development. These lesson plans, arranged in monthly units, would be developed through the participation of the developing country (in this case, Kenya) and a non-governmental agency, each contributing personnel in the areas of blind education, preschool education and orientation and mobility. A ten day writing workshop should be more than ample. The completed documents would then be submitted to the governmental body responsible for approval (in Kenya, this would be the Subject and Course Panels of the Kenya Institute of Education). After approval is secured, the documents would be published in the recommended format by either the governmental or non-governmental agency. The following structure and strategy are submitted herewith as a viable choice in the development of preschool curriculum for visually handicapped children.

EXPERIMENTAL PRESCHOOL CURRICULUM FOR VISUALLY HANDICAPPED STUDENTS IN KENYA

Goal Statements

#1 To provide experiences which will develop the child's cognitive abilities.
#2 To provide experiences which will develop the child's orientation and mobility skills.
#3 To provide experiences which will develop the child's fine and gross motor abilities.

#4 To provide experiences which will develop the child's social and emotional coping abilities.
#5 To provide experiences which will develop the child's ability to make choices and act independently.
#6 To provide experiences which will further develop the child's ability to care for him/herself.
#7 To provide experiences which will further develop the child's ability to use language (communication).
#8 To provide experiences which will develop the child's creative abilities.
#9 To provide experiences which will develop the child's ability to use leisure time in an appropriate and socially acceptable manner.

Student Population

Preschool visually handicapped children in Kenya are a widely differing group. The variables in which they differ are age, residual vision, language ability, motor ability, experiential deprivation and mental ability, just to mention the most obvious. Heterogeneity can be depended upon.

Teacher Characteristics

The teacher would have to be literate at a Standard 6 Level, highly motivated and committed to preparing the three lessons per day as described in the curriculum. A sighted person is recommended for the following reasons:

1. The curriculum, a highly active one, necessitates the constant visual monitoring of these young inexperienced children so that each one will be exposed safely to new experiences in many different settings.
2. Those students having usable residual vision need to be stimulated to use it and to develop the visual discrimination skills (Barraga, 1964) which would allow them to learn through a large print or magnified print curriculum during their future academic career.
3. The emphasis on orientation and mobility experiences necessitates visual supervision for safety and in monitoring technique.

Philosophical and Contextual Strategies

The following choices have been made with strong regard for both teacher (untrained) and student (heterogeneous groupings) characteristics.

Content-orientation rather than a process orientation has been selected (McCarthy & Houston, 1980) with as many discovery type discussions to be enumerated for use by the teacher.

A cognitive enhancement model (Blank, Rose & Berlin, 1978) is chosen emphasizing the experiential unit.

Special emphasis is placed on the quality of the verbal interaction between teacher and child during the lessons (Moffet, 1968) (Harley, 1963) (Cutsforth, 1932) (Nolan, 1960) (Dokecki, 1966).

The unit context is chosen in order to provide a richness of "incidental" information which the sighted child would pick up visually, to provide continuity for a progression of skills to be developed and to provide a common experience base upon which a primary academic program can capitalize on (Lowenfeld, 1981).

High sensory stimulation in the classroom setting is strongly recommended.

The classroom area would be divided into activity spaces in order to promote movement both indoors and outdoors (See Appendix A).

The class schedule would reflect the commitment to movement with the frequent ordering of movement activities to break up sedentary periods of instruction (See Appendix B).

This curriculum reflects a bias against freeplay scheduling. The author feels that there is ample opportunity for this type activity after the daily class schedule is completed.

It is urged that the curriculum be translated by the teacher into the child's home language, if at all possible, in recognition of the barrier to cognitive learning a new language may present.

Structural Elements of the Curriculum

In Kenya, children attend school nine months out of the year, five days a week. Therefore, it is desirable to have the development of nine large units. Each unit would be made up of 22 lesson plans in each of three areas: language/cognitive development, gross motor development and orientation and mobility. Therefore, there would be 66 lesson plans per month making a total or minimum of 594. Each lesson plan would be developed under the following suggested headings: Instructional Objectives, Materials Needed and Procedure for Activity.

Monthly Unit Topics (suggested)

I Members of the family, self and home (roles in the culture)
II Food (sources, categories, characteristics & some preparation)
III Animals, domestic (uses for, characteristics, life cycle, ways of caring for)
IV Transportation (all means, both mechanical and animal)
V School personnel & their jobs; community personnel & government heads & their jobs)
VI Agriculture (planting, caring for, harvesting, storing)
VII Environment (plants, trees, flowers, birds, sun, moon, rain, topographical elements such as rivers, hills, etc.)
VIII Clothing (name of, use for, climate/clothing, special items)
XI Human Beings (parts of body & function, human feelings and their expression, ways people are categorized in the country)

Daily Lesson Plans - Construction

One must proceed with care in the task of constructing the lesson plan in recognition of the heterogeneity of the students. Interest must be kept high, vocabulary must be controlled but not limited and the child's immediate environment and concerns should be the focus from which the expansion of knowledge takes place. Some children may need two years of preschool experience before they would be ready for Standard One.

Format Recommended

It is recommended that each Lesson Plan be printed on the back and front of a 5" by 8" index card. These cards would be filed in a curriculum box (wooden) made to hold the 600 odd cards. The preschool teacher would be able to hold the Lesson Plan in front of him/her for easy reference. Additions, revisions and substitutions to that particular Lesson Plan can be clipped to the card for future reference. After each day's class, the teacher would select and prepare the next day's lessons in the three different curriculum areas. Each lesson plan would build upon the learnings of the previous day and new concepts would be introduced at a steady rate.

Lesson Plan Specimen

UNIT III - Animals, domestic LESSON PLAN - Mother & Babies (bird) chicken

Instructional Objectives:

1. To introduce students to a domesticated bird and its family.
2. To inform students regarding the chicken's life cycle.
3. To inform students as to a chicken's use to society.
4. To provide students with the opportunity of touching the birds and identifying outstanding characteristics.
5. To inform students about the care and feeding of chickens.
6. To discuss with the students the animals who prey on chickens as a source of food.
7. To allow students experience the incubation of eggs (if at all possible).

Materials Needed:

1. Adult hen and chicks
2. Chicken eggs
3. Incubator, if possible
4. Chicken feed
5. Access to hen's roosting place

Procedure for Activity:

Discussion: "What do you hear? What kind of an animal is it? Is it big or little? How many are there? Have you ever touched a chicken?" Teacher is to hold the Mother Hen in her lap and urge all the children to pet the hen. Discussion about feathers and that birds have them. Function of the feathers (to fly) and the examination of the chicks which have the fluff and can't fly yet because their feathers are not well developed.

Feeding: children feed the chicks with a discussion about the chicks needing water, food and protection from the Mother Hen. How does the Mother protect her babies? Why does she need to protect the babies? Who wants to eat them?

Houses: The need to have chicken houses and how they are constructed (visitation to one, if possible).

Incubation: Would be very interesting for the students to feel the chick breaking through the eggshell. A light bulb and a box would make a good incubator.

Additional discussion ideas: Differences between birds and other animals.. talk about number of legs, beak vs. mouth, feather vs. fur. Means of mobility (flying, walking, running - sometimes described as scurrying because they run so fast in trying to escape capture and towards food). Marginally sighted students should be encouraged to be able to tell what color the chickens are. Let's go outside and hear other birds. Some people say they are singing. How many birds can you hear? They are wild. These chickens are domestic. What's the difference? Can you name any other birds? What other animals can one find in the Shamba?

Evaluation

Every curriculum should have both internal and external means of evaluation. In other words, how does one know that the teacher is teaching, the learner is learning, and that the curriculum is responsible for the growth in the child? This is not too difficult to determine after a student is literate, and can tell you what he/she does or does not know before and after the lessons are presented. Curriculum evaluation, of an external nature, is difficult at best, when dealing with a preliterate student group. Hopefully, the regional curriculum agency will design some type of instrument which could be administered orally, on an individual basis, in the student's home language, that could adequately evaluate the curriculum externally.

Internal means of evaluation would test the actual lesson plans against the nine goal statements in order to determine the congruence between what is stated and what is actually done in the classroom. Annual review of the curriculum and its elements would aid in this task.

IMPLICATIONS FOR TEACHER TRAINING

Developing countries appear to have many untrained teachers who are put into classrooms to teach with or without curriculums, with or without inservice training. When one has the context of the curriculum, inservice training is a viable means of upgrading the teacher's performance in the classroom. The less training the teacher has, the more specific the curriculum needs to be. It is recommended that inservice be given annually after the teachers have used the curriculum for a year. The inservice should have two components, learning and evaluation.

The learning component could be one that would centre around background information sheets, each dealing with a philosophy, a practice, research findings, use of teaching aids, history, teaching method, differing child-care patterns, child development, etc. These would be presented for group discussion, allowing all teachers to contribute their ideas (much as one might do in any classroom). A non-lecture approach is recommended. These information sheets would form a reference manual which will include an extensive bibliography, teaching aids sources, textbook sources, and governemtnal/non-governmental agencies who might be resources. The curriculum coupled with inservice training of this sort would deliver effective services to preschool blind children at a minimal cost until such time as teachers can be formally trained in the two disciplines of blind education and early childhood education.

The evaluation component would provide feedback to the agency responsible for revisions of the curriculum. It would also allow for the examination of each lesson plan in such a way as to test them in relation to the nine goal statements.

IMPLEMENTATION OF CURRICULUM CONSTRUCTION

Developing countries who rely upon untrained teachers in preschool classes for visually handicapped children would be well advised, in my opinion, to develop an appropriate curriculum of this type. A proposal should be written to a governmental or non-governmental agency for funding and personnel. Document reproduction, in the required format, and dissemination are also issues to be dealt with. When writing curriculum for untrained teachers it is most important that many well trained people are involved. Incountry experts in the areas of blind education and preschool education must carry the brunt of making the curriculum appropriate both culturally and regionally. Out-of-country experts bear the brunt of informing the group of the many choices, both philosophically and methodologically, that can be made in constructing the curriculum. Hopefully, what emerges is that particular country's production reflecting what is important in that society for preschool children to learn, even though we deal with a small incidence group.

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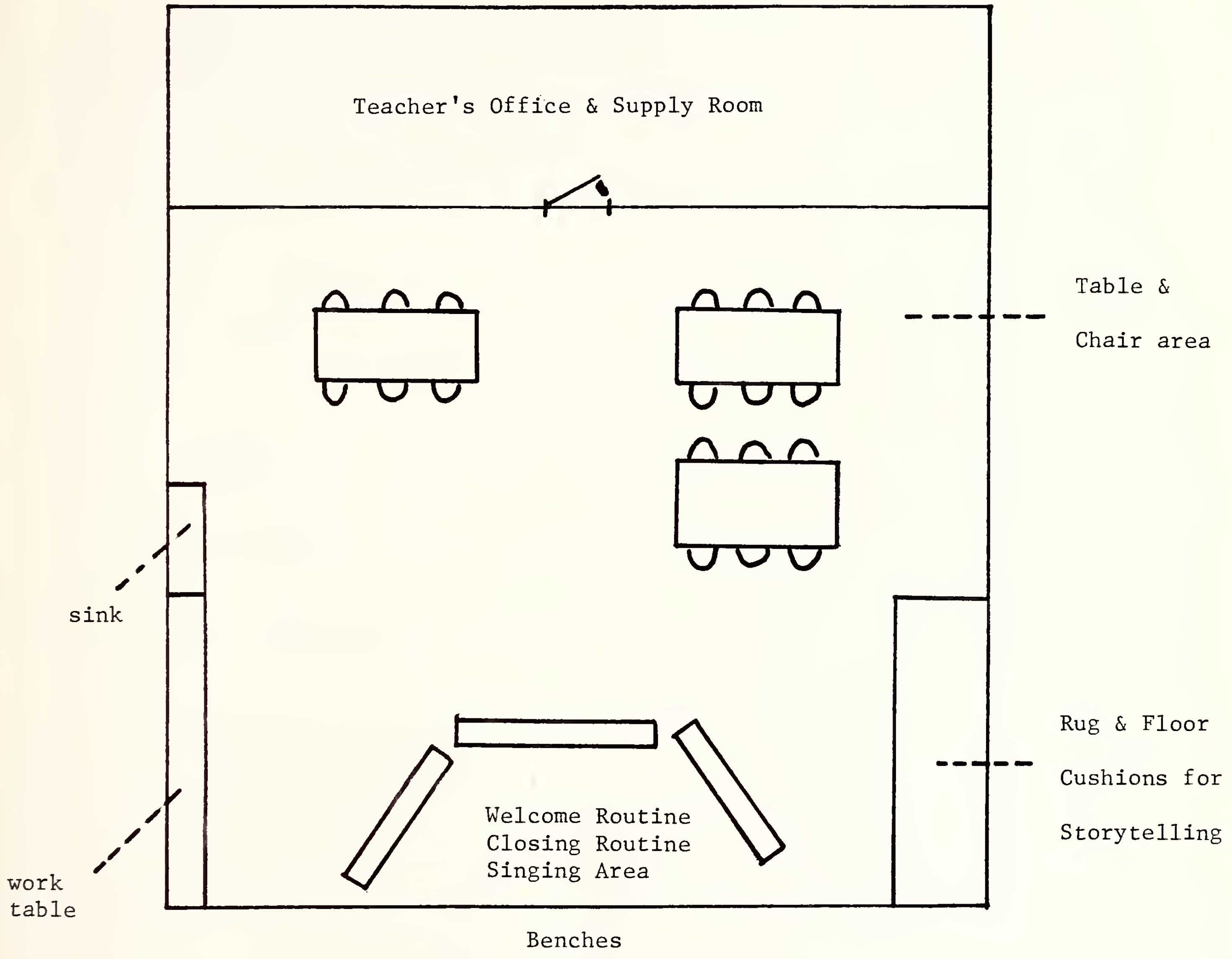
APPENDIX A

Classroom Layout



APPENDIX B

Sample Daily Schedule - Preschool (K)

8:00 to 8:30	Welcoming routine, daily news, sharing time
8:30 to 9:00	Language/cognitive Development Lesson
9:00 to 9:10	Movement activity such as Simon Says or Hokey Pokey (Movement of limbs to music or exercise)
9:10 to 9:45	Continuation of Language/cognitive Dev. Lesson
9:45 to 10:00	Bathroom Break
10:00 to 10:30	Gross Motor Development Lesson
10:30 to 11:00	Snack time, wash up
11:00 to 12:00	Orientation and Mobility Lesson
12:00 to 1:30	Wash up, Lunch, short nap
1:30 to 2:30	Creative lessons reinforcing the above lessons using any of the following: Art, music, drama, crafts.
2:30 to 2:45	Closing routine with students verbalizing what they enjoyed most that day.

Regional climatic conditions and the age of the students will determine the length of the school day. The class schedule, posted in each classroom, should adequately reflect the type of activities structured for the students.

PROGRAMMES FOR THE PREPARATION OF TEACHERS OF THE VISUALLY-IMPAIRED AT THE UNIVERSITY OF IBADAN, NIGERIA

Dr. P.O. Mba
(Nigeria)

Special Education, with some justification, prides itself upon being "Special" or unique because it provides (among a few other educational necessaries), teachers and other professional educators who have specialized training and competencies needed for work with exceptional children (Reger, Schroeder & Uschold, 1968; Dunn 1963). These compentencies which represent the "hallmarks" of the "Special teacher" include:

(a) understanding the special child and why he is special
(b) competence in curriculum adaptation and special methods of teaching
(c) skill in the selection and use of specialized equipment and a wide variety of materials
(d) ability in counseling, and providing guidance for children and/or their parents who may have problems relating to the disabled in the family
(e) healthy personal characteristics and attitudes and
(f) in-depth knowledge in the special area desired (HEW, 1959).

These competencies are as important to the classroom teacher of the exceptional child as they are to the teacher educator and teacher preparation programme.

In the area of the visually-handicapped, Lowenfeld (1958) has delineated five principles with which the teacher (no less than the teacher trainer) must be familiar: 1. Individualization of programme. 2. Concreteness. 3. Unified instruction stressing the inter-related areas. 4. Systematic stimulation, and 5. Self-activity.

At the University of Ibadan, the premier institution of higher learning in Nigeria where this presenter has been privileged to head since 1977, the first full-dress Department of Special Education in Nigeria, the teacher education programme has been designed to reflect the needs of the country in terms of priority areas and programme content.

A national study was carried out by Mba (1976) to determine the Special Education needs of Nigeria at a time when Special Education which had been virtually the exclusive preserve of the missionaries and humanitarians, was beginning to attract and hold the attention of the Nigerian Government. State schools were being established, and State Ministries of Education were encouraged to open special education units and make plans to recruit and train teachers of the handicapped. Mba's study which was carried out by means of questionnaires and interviews across the country, involved most of the special education teachers available at that time, heads of institutions associated with Special Education, and some teacher trainers in the existing Universities. The findings were very favourable to the education of the visually-handicapped. A total of 82.76 percent of the respondents agreed that provisions for the visually-handicapped in Nigeria were most desirable. Only 1.15% felt that such provisions were not particularly important. Educational provisions for the deaf were supported by 75.86% of the respondents. The educable mentally retarded attracted 65.12% support while the physically handicapped were supported by nearly 71% of the respondents. Another item in the questionnaire which is very relevant to the education of the visually-handicapped, required the subject in this study to indicate the degree of importance that should be attached to teacher preparation in each of the main areas of exceptionality. A total of 64% of the respondents thought teacher preparation in the area of the visually-handicapped was most important, as compared to: 46% in the area of the mentally retarded; 49% - physically or orthopedically handicapped; 36% - emotionally disturbed; and 60% in the area of the gifted.

One other interesting finding of the survey was the ranking of "desirable experiences" for undergraduate student teachers as follows:

1. Experience in counseling with parents, participation in Special Education Workshops and Seminars.
2. Planned observation of model programmes in Special Education.
3. Internship within well established Special Education Programmes.
4. Clinical Audiometry and Speech Therapy.
5. Administration of Special Education.
6. Interpreting medical, psychological and educational reports.
7. Research in Special Education.

The point of this presentation is that our teacher education programme at the University of Ibadan has been planned to reflect the needs of the country as ascertained through research, and from enlightened public opinion. A general over-view of the programme is necessary for the purpose of highlighting the importance we attach to the preparation of teachers of visually-handicapped children.

The objective of our programme is to train diagnostic prescriptive teachers in five areas of exceptionality: the visually-handicapped, the hearing-impaired, the mentally-retarded, the learning disabled and the speech-defective. There are four courses (or levels of preparation):

(a) A one-year certificate course, open to regular classroom certificated teachers who have had five years post-certification teaching experience with normal children.
(b) A two-year (one year for holders of special education certificates) diploma programme.
(c) A three-year under graduate degree programme leading to the Bachelor of Education degree in Special Education. Admission to this course is open to holders of approved equivalent of associate of arts certificate including the diploma certificate.
(d) A-one-calendar year Master of Education programme which is cross-disciplinary in content, and is intended for B.Ed. degree holders who aspire to supervisory positions in State Ministries of Education.

Each of these four programmes offers courses in the five principal areas of specializations which we have. Student teachers in each area take mandatory common core courses within the Department and in other relevant departments within the Faculty of Education. In addition to this, all undergraduate students take a number of courses in one discipline, as teaching subjects, in other faculty in the University.

Compulsory common core courses in the first year of our three year course in the Department of Special Education include:

(a) One-unit introductory courses in:
  i. Education of the gifted child
  ii. Education of the hearing-impaired
  iii. Learning disabilities in children
  iv. Mental Retardation
  v. Audiology
  vi. Education of the visually-impaired
  vii. Communication skills.
(b) Two-unit courses in:
  i. Psychology of teaching Reading, Writing and Spelling
  ii. Practicum involving supervised observation of classroom instruction and other educational activities in selected special schools, including case studies and reports.

During the second year of the three-year undergraduate sequence, all our student teachers (as in the first year) are required to take four common-core courses including:

(a) Classroom Management and Guidance in Special Education.

(b) Psycho-educational Diagnosis in Special Education.
(c) Clinical Teaching
(d) Counseling Parents of Handicapped Children. In addition to a sequence of courses in each student's area of specialization, the student teacher is taken-out on a supervised intensive teaching practice, during which he learns by practical experience how to manage a self-contained class and teach particular subjects to exceptional children in his area of specialization, or to regular school teacher trainees.

The third and final year of the three year course is devoted to in-depth training in each area of specialization, once the student has taken and passed the final compulsory course on teaching the Multiply Handicapped child and has also satisfied the final teaching practice requirement.

Time forbids me to give even a thumb-nail sketch of our Certificate, Diploma and Masters programmes, but I believe enough has been said to give some idea of the kind of professional exposure which our student teachers get out of our programmes.

What does the Unibadan programme offer to the teacher of the visually-handicapped? The teacher of the visually-handicapped acquires the same general background in education and the general field of Special Education as his fellow teachers in other areas of specialization. Additionally, his course takes him through a graduated exposure to knowledges and skills which are basic to his area of specialization. These (presented in the form of course titles and short descriptions of course contents) include:

Year II: (a) Education of the Visually-Impaired:
Communication skills for the visually-impaired, including braille transcription and reading. Language development and touch-type writing.
(b) Introduction to Orientation and Mobility of the Blind:
Definition of orientation and mobility. Basic skills and techniques. The sighted guide techniques, etc.
(c) Advanced Communication Skills for the Visually Impaired:
Advanced braille transcription and reading mathematics and scientific notation.
(d) Teaching of Mathematics to the Visually-Impaired:
Techniques and methods of teaching mathematics to the visually-impaired. The use of abacus and cubarithm.
(e) Teaching Science to the Visually-Impaired:
(f) Education of the Visually-Impaired:
Including history of development of education of the blind in Europe, North America and Africa, educational provisions, etc.

Year III: (a) Media for the visually-impaired, including, the use of tape-recorders and recording for the blind.
(b) Advanced Orientation and Mobility, including the use of the long cane, etc.
(c) Rehabilitation of the visually-impaired including medical and vocational rehabilitation.

One (the B.Ed. programme) of four of our programmes is presented here in some detail to show the efforts the University of Ibadan is making to provide our teachers of the visually-impaired with in-depth and broadly-based training they need for their task of providing an education for a population of visually-impaired children in Nigeria, estimated at 16,000 (Abang, 1980). Since 1974, we have produced a total of 78 teachers of the visually-impaired. If this number is small the reason is that our emphasis has been less on numbers, and more on quality. It is gratifying to note that the products of our programmes have gone out to open and manage schools for visually-handicapped children in their home States in various parts of the country.

Apart from bi-annual evaluations of our programmes and teaching staff, the need for continuous monitoring of the relevance of our courses has long been recognized. This accounts for the pilot study by Mba (1981) a brief report of which follows.

A COMPARISON OF TEACHERS RATINGS OF THE IMPORTANCE OF SELECTED COMPETENCIES IN EDUCATION OF THE VISUALLY HANDICAPPED WITH RATINGS OF THEIR PROFICIENCY IN THOSE COMPETENCIES

The purpose of this study was to determine the importance which teachers and student-teachers in the area of the visually-handicapped attach to 12 selected competencies which teachers of visually-handicapped children should possess.

This study was a small-scale replication of a study by Dunn et al. (1956) reported by Bateman (1967) in which 100 teachers of blind children were asked to rate 82 abilities, knowledges and skills which a teacher of blind children needs. Dunn and others had found that the least important competencies (according to the ratings) were:

1. Ability to administer aptitude, achievement, mental ability and visual acuity tests to blind children.
2. Knowledge and understanding of current theories about causes and prevention of blindness.
3. Knowledge of anatomy and physiology of the eye.
4. Knowledge of the history of education of the blind. Abilities rated most important included knowledge of the possible effects of the home on the blind child's development.
5. Knowledge of medical emotional, psychological, social and educational implications of blindness.

The subjects of the present study were 12 teachers of the visually-handicapped (most of whom had graduated from the Unibadan programme) and 22 student teachers in their final year. Twenty of the 34 subjects were males while 11 were females. Thirteen of them were aged 21 - 30; while 10 were aged 31 - 35. Six others gave their ages as between 36 and 40. The most experienced of these teachers had had 12 years teaching experience while the least experienced had only one year teaching experience. The average years of experience was 3.4 years.

A twelve-item questionnaire presenting twelve competencies was made up by the investigator, four of the competencies being selected (or adapted) from the study by Mackie and Dunn, reported by Bateman (1967). The remaining 8 competencies were adapted from HEW's (1959) Professional Preparation for Teachers of Exceptional Children.

The subjects were required to rate the 12 competencies in their order of importance to the education of the blind, and also according to their (the subjects') proficiency in the competencies. Thus, each participant rated each of the competencies twice. The most important was given a rating of 1, while the least important was rated 12. Similarly, the competency in which the subject was most proficient was rated 1 and the competency in which he was the least proficient was rated 12. The results are presented in Tables I - III.

DISCUSSION

Taken together, the teachers and student-teachers were of the opinion that a knowledge of orientation and mobility techniques is of the greatest importance to the education of the visually-impaired. It is well-known that the term "visually-impaired" normally includes not only the legally blind but also children with low vision and the partially-seeing - two groups that do not have as much difficulty in orientation and mobility as the legally blind. However in Nigeria, these two groups of the visually-impaired are yet to be separated from the legally blind who need orientation and mobility training most. This may well account for the high rating given to orientation and mobility by the combined group of respondents.

We are not surprised that a knowledge of the possible effects of the home environment on the blind child is considered of great importance to the education of the blind. In Nigeria and, indeed in many developing countries, the home "climate" is rarely optimum or healthy. The blind child is either pampered and "spoilt" by his over-permissive parents and relations, or he is compeletely neglected and left in isolation. Naturally this has some effects on his educational attainments and motivation. It is interesting that this item was also given a high rating in the study reported by Bateman.

"Guidance and counseling with parents" was given a rating of 3 in order of importance and also in regard to teachers' proficiency. It is noteworthy that the respondents rated "ability to teach braille" 5th in importance but 1st in regard to teachers' proficiency. Ability to teach braille and facility in braille reading and writing are, no doubt, important; however, in many developing countries, braille has become synonymous with the whole field of education for the blind, hence students and teachers spend much of their time practising braille writing. Usually, little thought is given to those (the partially seeing and children with low vision) who should read large print instead of braille.

Two competencies that consistently received low ratings by both teachers and student-teachers alike were: (a) A knowledge of the history of education of the blind in Nigeria, and (b) A knowledge of speech therapy and how to teach phonics.

The history of education of the blind in Nigeria is hardly exciting when it is known that in the period of 28 years since formal education of the blind was introduced, less than 10% of school-age blind children have found their way to school. Again, speech therapy for the blind cannot be expected to assume reasonable importance in Nigeria at this time when other more pressing needs such as making separate provisions for the blind, low-vision and partially sighted children remain unmet.

To conclude, it is noteworthy that there is little difference between the ratings of teachers and student-teachers as regards the importance of many of the competencies. It is also readily observable that both teachers and student-teachers tended to rate their proficiency lower than the rating of the importance of the more highly rated competencies. A general picture that emerges from this study seems to be one that shows teacher education programmes of the University of Ibadan as providing needed professional experience for teachers of the visually-impaired. We welcome your suggestions.

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TABLE I

TEACHERS' AND STUDENT TEACHERS' RATINGS OF THE IMPORTANCE OF SELECTED COMPETENCIES COMPARED WITH SELF RATINGS OF THEIR OWN PROFICIENCIES

Rank Order of Importance	COMPETENCIES	Rank Order of Proficiency
1.	A knowledge of orientation and mobility techniques.	2
2.	A knowledge of the possible effects of the home environment on the blind child's social, emotional and intellectual development.	4
3.	Guidance and counseling with parents of the blind.	3
4.	A knowledge of observable signs of visual impairments.	5
5.	Ability to teach braille and facility in braille writing.	1
6.	A knowledge of the anatomy and physiology of the eye, and conditions that bring about blindness.	6
7.	An understanding of medical, psychological and social implications of blindness.	10
8.	Ability to administer and interpret vision screening tests.	11
9.	Ability to use audio visual aids for the blind.	7
10.	Ability to teach arithmetic to blind children.	6
11.	A knowledge of the history of education of the blind in Nigeria.	8
12.	A knowledge of speech therapy and how to teach phonics.	12

TABLE II

CLASSROOM TEACHERS' RATINGS OF THE IMPORTANCE OF SELECTED COMPETENCIES COMPARED WITH SELF-RATINGS OF THEIR OWN PROFICIENCY

Rank Order of Importance	COMPETENCIES	Rank Order of Proficiency
1.	A knowledge of the possible effects of the home environment on the blind child's social, emotional and intellectual development.	8
2.	A knowledge of orientation and mobility techniques.	2
3.	Guidance and counseling with parents of the blind.	3
4.	Ability to teach braille and facility in braille	1
5.	A knowledge of observable signs of visual impairment.	5
6.	A knowledge of the anatomy and physiology of the eye and conditions that bring about blindness.	6
7.	An understanding of medical, psychological, social and educational implications of blindness.	10
8.	Ability to use audio-visual aids for the blind.	7
9.	A knowledge of the history of education of the blind in Nigeria.	9
10.	Ability to teach arithmetic to blind children.	4
11.	Ability to administer and interpret vision-screening tests.	12
12.	A knowledge of speech therapy and how to teach phonics.	11

TABLE III

STUDENTS' RATINGS OF THE IMPORTANCE OF SELECTED COMPETENCIES AND THEIR RATINGS OF THEIR OWN PROFICIENCY

Rank Order of Importance	COMPETENCIES	Rank Order of Proficiency
1.	A knowledge of orientation and mobility techniques.	1
2.	A knowledge of the possible effects of the home environment on the blind child's social, emotional and intellectual development.	3
3.	Ability to teach braille and facility in braille writing.	2
4.	A knowledge of observable signs of visual impairments.	4
5.	Guidance and counseling with parents of the blind.	6
6.	A knowledge of the anatomy and physiology of the eye and conditions that bring about blindness.	5
7.	An understanding of medical, psychological, social and educational implications of blindness.	11
8.	Ability to use audio-visual aids for the blind.	9
9.	Ability to administer and interpret vision-screening tests.	10
10.	Ability to teach arithmetic to the blind.	7
11.	A knowledge of the history of education of the blind in Nigeria.	8
12.	A knowlege of speech therapy and how to teach phonics.	12

IN THE BEGINNING...THE SUPPORT SERVICES
PARENTS TREATMENT AND INTEGRATION OF BLIND CHILDREN

Kurt Kristensen
(Denmark)

There is a connection between parents' attitudes and the integration of the handicapped child. The parents who need to acquire the acceptance of their handicapped child and the parents who avoid putting the child together with others will not be capable of integrating the child in a positive way in the normal system. Mainly because the child never has learned to be integrated.

If an integration is to succeed, the handicapped child has to have had experiences with non-handicapped children from an early stage of life.

The child who has lived an over-protected life together only with the very nearest family will not know how to act at the start of school. The child does not know the standards of normal children. Exactly this fact of having picked up the normal standards in one's behaviour, is one of the conditions for integration.

Parents' treatment/parents' attitude must therefore be a natural entrance to an evaluation of the subject of integration.

PARENTS' ATTITUDE

To any couple it is shocking to discover that their child is handicapped. The largest difficulties often occur for parents when they find out that their newborn child is blind for instance. These parents have certain expectations for the child whom they have waited for nine months. On the other hand they have not yet got an actual relationship with the child, i.e., the child starts off with disappointing the expectations of the parents. Most parents will be so disappointed and unhappy at discovering that something is wrong with their newly born child that it will be hard for them in the beginning to give the child the emotional contact which it needs. If the handicap occurs later or if the parents become aware of the handicap later, they have got a relationship with their child, and they have had the possibility to give the child normal contact in the first very important period of the child's life.

To get a handicapped child affects differently in different cultures. Some places it is looked upon as a catastrophy, other places parents accept things as predetermined and as something on which one has had no influence.

Some parents will get a grave feeling of guilt. Is it my fault that the child has become handicapped? Is it a punishment, or have I been careless during my time of pregnancy?

It is very important for the future attitude to the child that very early they get a chance to adapt their attitude to the handicapped child. Too often we have seen parents of a handicapped child ready for school, where the parents have never discussed what in fact it means to me, to you and to us that our child is handicapped.

CRISIS TREATMENT

In many places parents of a handicapped child are offered a crisis treatment. It has turned out that parents, who in a good and natural way (not strictly professional treatment) have had their disappointment and grief at the child's handicap at an early stage, also later are capable of accepting new difficulties which occur in relation to the child.

ACCEPTANCE OF THE HANDICAP

Acceptance is not something which you deal with once and for all in life. First the parents have to accept that their child is handicapped. Later they have to accept that maybe it will be difficult for the child in relation to other children, that there are difficulties in connection with the child's school attendance, that the child is not like others in the teenage period, etc.

Parents of handicapped infants need help. The more the parents are helped in the crises they get in, the better they are themselves at helping the children to live with their handicap in a reasonable manner.

HELP FOR PARENTS TO HANDICAPPED CHILDREN (CARE)

At this symposium, where we have people attending from many different cultures, it would not be right to concretize the conception of parents' treatment/parents' guidance, because only those who live in the individual country and know the culture of their country, know what parents need, and know how the help is to be given, but generally you can say that the largest need of parents of handicapped children is that you put an interest into their difficulties. They need care, and they need concrete help and information as to what they have to do to help their child in the best way.

Often it is said that parents are born to be good parents, and that they all know how to treat their child. If they have problems, they can ask the neighbour, a sister or a friend. Because many others have had exactly the same difficulties. It is very much harder for parents of handicapped children. Firstly, they have their disappointment and grief at the child's handicap to fight with. Secondly, they have no possibility of asking the neighbour what to do in this and that situation. For the neighbour will probably consider the problems as so special and connected with handicapped people that he or she gives up guiding.

You tend to consider a connection with all difficulties which occur, also the normal problems of bringing up, to the child's handicap. Thereby many relations in connection with the handicapped child are mystified.

GUIDANCE

All parents who have blind children should have access to guidance. Many of the difficulties which occur later could be avoided if the parents had somebody to consult and somebody to talk with about emotional problems, which involuntarily follow the fact of being parents to a severely handicapped child.

The small blind child has a need to be stimulated in functional situations. The child must be trained in those periods in which it is just sensitive to learning this or that function.

E.g., when the child starts to show interest in the connection between symbol and object, this has to be used in the daily situations. Many blind people's largest handicap is that they miss this connection and therefore they have developed a symbolic language which only builds a little on acquaintance of the objects, the concrete, the real world.

SOCIAL DEVELOPMENT

If the child is to profit as much as possible from an integration in the normal system, the integration has to have started already when the child is a baby. The first condition for a good integration is - as mentioned - reasonable parents acceptance. The parents who treat the child as very diverging from when it is very small will have difficulty in giving the child standards which it can use in the normal system.

The blind child who because of the parents' insecurity and lack of acceptance has sat passively rocking inside the house will seem very diverging when it starts in a normal school. Neither will it through daily experiences have obtained the knowledge of daily life, which is necessary in the social contact with others. The child will not have the necessary basis for building an education on. I.e., in order to integrate the blind child in the normal system in such a way that the child profits from it, it is necessary that the child in the period in which it has been sensitive to it has learned social contact with others - has experienced the standards of children of the same age.

SOCIAL PRECONDITIONS FOR INTEGRATION

Thus the blind child must have had experiences with other children (and adults) in its early infancy. It has to have had the possibility of being together with others. In interplay with other children it must have lived through the development which all other children live through. From having been an egocentric individual to getting interest for others and through this developing joy in social interplay with others. If the blind child has not experienced these stadiums like others and not picked up others' social standards, it will be very difficult - if not impossible - to demand that the child has to live in a social interplay with other seven-year-olds in first grade.

The key to social integration is the very early social development of the small child. We will never demand that the small child has to do sums before he/she knows the conception of quantity. Why then expect the blind child without social experiences having to function with a class of normally seeing children at the age of 7.

PEDAGOGY

People have been speaking a great deal about the pedagogical and practical preconditions which should be present at a successful integration.

Here you also have to look at the normal child's development and the sensitive phases. You can never jump over a period in a child's development. The child has to live through period upon period. It is therefore necessary to give the child special help in the areas where the child is compromised because of its visual blocking.

There are societies where the women are housewives and where the food is made completely from the beginning (you rinse the vegetables yourself, you slaughter the chicken, etc.). In these societies children have a greater chance of getting a natural knowledge of the world which surrounds them. E.g., it is easier for these children to get an object/symbol connection.

At successful pedagogical integration it is important that the blind child has had the possibility of living through the different stages of development, so that it has a basis to build the school-like (academic) education on. For the child which has not had experiences with the close things, it will be very unfortunate to be taught in a first grade, where a great deal of knowledge is expected about daily matters.

SCHOOL ATTENDANCE

To the extent that it was possible in some societies it has earlier been normal to have blind children integrated, i.e., if there were a blind child in the village, you took care of it. there were no special arrangements for the child but it was in the group. Later great emphasis was put on making the blind children educationally skillful. Therefore blind schools were built, where with special methods, blind children were made, theoretically, very skillful. The question is though, in many cases it has been overlooked, what is it really, that blind children need. E.g., do children, as adults, get access to read Braille books? The child who is able to read Braille books is very ill situated if there is only one Braille book in the town and if he is not able to move about and take part in the things that go on in the town.

Blind children have to get special training. Among other things they have to learn mobility and learn how to read Braille if it is possible.

Blind children would probably profit best from being in the normal school system, where they keep contact with the children they know and whom they later in life will get in contact with. They are less likely to profit from being at a blind school with its special offers.

It is wishful for children to get an offer of attending the local school and if in every country a corps of specially trained teachers is organized. These teachers should then with longer or shorter intervals be able to visit the children in the local school, discuss pedagogical matters with the teachers and give direct training to the children, e.g., in mobility and Braille. This special group of teachers should come from some centers, from which materials for the blind were made, and where the local teachers could take part in shorter courses.

DISCUSSION

In some countries where not all children receive education it may be considered a luxury to establish special systems for handicapped children. On the other hand one has to say that the handicapped person who has not received education has far less possibilities of succeeding in life than the normally equipped who have not attended school. We hope that sometime in the future we will reach the point where handicapped children get at least the same possibilities as non-handicapped in the school system/in the normal system. But if the normal blind children transfer what they have learned in the situation of education to the daily life, the education has to take place where the child lives, and where the child will live later as an adult.

But of course in the future there will be a need for a few special blind school for certain children.

BLIND CHILDREN:
THE SPATIAL SENSOR'S ROLE AS A DEVELOPMENTAL AID

L. Kay
N. Kay
(New Zealand)

The theme we seek to pursue is this:

"If the life-style of the severely visually impaired adult of the future is to show any significant improvement over present-day expectations the child of today with severe visual impairement must be provided with technological means for acquiring richer spatial concepts with which to form a perceptual framework for the developmental process. Unaided spatial perception is inadequate".

Reducing developmental delays in these children through infant stimulation programs still leaves a totally blind child severely disadvantaged relative to those more fortunate, visually impaired children who have at least object perception capabilities. It is our belief that the life-style of the blind or severely impaired child can be raised closer to that of the partially sighted with the support of modern technology. We can see no cogent argument against this assertion and indeed it appears to be implicitly accepted by this Symposium since a session has been devoted specially to it. We only have to determine the form it will take.

For blindness, unlike other forms of handicap, there is no obvious form of prosthesis. Replacing a lost arm or leg clearly indicates the fitting of an artificial prosthesis which is modelled on the missing limb and emulates its function. With a child suffering a severe hearing loss an aid which amplifies sound is again the obvious prosthesis becuase it enhances the function of the impaired organ. Low vision aids play a similar role. In the case of blindness, as well as profound deafness, there is a severing of a sensory input for which there is no obvious form of prosthesis, and indeed there is little likelihood of a recognizable replacement model arising as an acceptable prosthesis. This, regardless of assertions to the contrary by those who study stimulation of the visual cortex (Dobel 1977).

It follows that whatever comes forward as an alternative will most likely appear to be the brain-child of an inventor, and as such he is seen to be biased in his outlook and his idea needs rigorous testing for effectiveness before it can be considered a viable alternative to the natural function of the eye or ear.

What we from Canterbury now have to offer the field of blindness is a significant new development in sensory aids, the outcome of two decades of intensively supported research into non-obvious ways of inducing non-visual perception. This new development, an advance on the Binaural Sensory Aid, has the potential for raising the expectations of the totally blind to that of the visually impaired (object perception) in terms of spatial awareness.

THE NEW TECHNOLOGY

Its Background

The Binaural Sensory Aid now commonly known in the commercial form as the Sonicguide(TM) was invented two decades ago and at the time many scientists believed its sensory capabilities to be too rich for blind people to learn. They also thought that the spatial resolution would be inadequate and thereby cause confusion, but the idea was pursued because a study of bats showed they could use an air sonar effectively. It was not until a decade later that the sensor became an acceptable aid through an exhaustive evaluation process in 1971-72 (Kay 1974). The testing of the aid in a mobility setting by adults was not seen to be scientifically based (although we would strongly disagree); instead it was thought to be subjectively based, using the judgement of O & M specialists, and controversy continues over its potential to aid the blind (Howarth, et al. 1981) (Kay 1981). Dare we say that the same happened to the use of Braille? A war was waged off and on for three-quarters of a century over which system of Braille should be used in the United States. In the words of Louis Rodenburgh "The blind paid in full" (Bledsoe 1971).

It was known by the inventor of the Sonicguide that rich though the spatial information appeared to be to the novice user, it did suffer quite serious limitations in spatial resolution (Kay 1966), but this was the best that technology of the day could provide. The question was asked very simply "Is it good enough to use?". The blind users in 1972 said "yes" (Airasian 1973).

Around 1976 we, at Canterbury, were able to improve the technology and make sensory aids which were then thought to be more appropriate for aiding blind children (Boys, et al. 1979). To distinguish them from the commercial aids we called them the Canterbury "Babies Aid" and the "Child's Aid". In principle of operation, they were the same as the original Binaural Sensory Aid but provided different sensing characteristics (field of view, sensing range, signal quality, etc.) to meet the developing skills of the infant and child (1-11 years). A primary skill is reaching to device sound cues even though the object of interest is silent (Kay 1980). In due course the commercial Sonicguide followed suit providing shorter distance sensing characteristics and special headband fittings for the young blind person; the direction sensing and field of view remained unchanged however. To the non-technical teacher of blind children, even one who has taken a course in Electronic Travel Aids, the differences may not be clearly evident, especially if these cannot be compared side by side. Certainly the differences led to controversy primarily to draw the attention of teachers to the problem of deciding on what was needed in the form of technology.

We have carried out an experiment to illustrate very simply one of the differences which in terms of spatial perception is very important - that of resolution of objects in the field of view (Kay and Kay 1981). To demonstrate this in a meaningful way we asked subjects under blindfold to count the number of rods placed upright on a board. In Figure I is shown the arrangement and the number of rods, all at the same distance, which could be counted by the most competent aid user.

The number of rods were presented varied randomly and of course the larger the number of rods in the field of view the more difficult it became to tell just how many were present. In order to make a correct count a subject had to resolve one pole from an adjacent one. The result shows the difference between the Sonciguide and the "Babies Aid". Really neither are impressive in this particular respect. When the rods where placed at different radial distances shown in Figure 2 the resolution improved, that is the angular spacing between rods could be less. This illustrates how radial distance separation has an influence on the angular separation required to perceive objects as being separate.

Earlier experiments had shown that when one object moved relative to another in the field of view the resolution in distance could be increased as much as five times (Do and Kay 1976/77). It should be evident then that the structure of the environment and motion in it greatly influences the degree to which one can perceive objects as being separate entities using a binaural sensor.

The Binaural Sensory Aid was designed for mobility when the environment is constantly changing and new objects enter the field of view as others drop out. We can call these "events". The pedestrian travelling with a Binaural Sensor experiences a series of new events and can seemingly pay attention to each as it changes position, with apparent high resolution. When in a stationary position however with head held still, perception of the environment decreases dramatically and the echo sounds seem confusing. This is because the events which enable auditory tracking to take place, cease. The moment an object moves however it is immediately perceived relative to the stationary surroundings. This is why the aid works as well as it does in a mobility setting: it is also why difficulty has been experienced in assessing the man-machine performance. No one doing so in a scientific exercise has made mention of this fact.

It should now be evident that a child sitting wearing an aid trying to make sense of the complex sounds caused by echos from surrounding objects may not always find the experience very rewarding. Head rotation induces new events only to the extent that an object is caused to enter the field of view or leaves it. A wide angle sensor requires greater head motion than a narrow angle one. It is in this respect that the Sonicguide can be said to be less effective than the "Babies Aid". It remains a matter of opinion whether a child should be provided with a wide field of view in which resolution is poor but detection of an object in the periphery possible, or a narrow field with better resolution and less likelihood of detecting an object just outside this narrower field. Some new concept in spatial sensing was really needed and, primarily because of the problem children were seen to experience with the Binaural Sensors, a new sensor was developed.

The "Trinaural" Sensor

Vision is built up from a narrow high resolution central field (fovea) and a wide peripheral field of view. The fovea saccading from point to point in the field provides detail of objects; the peripheral field is very sensitive to motion. The new "Triaural" Sensor as we are presently calling it, models this concept of spatial perception to aid the auditory process of object discrimination. A picture of the sensing elements is shown in Figure 3, mounted in an adjustable headband for classroom use by school children.

At this time the sensor is intended to serve an education purpose in a school setting where we see a great need to effectively teach the basics of spatial perception. The lack of cosmetic appeal at this stage can easily be remedied if and when the need arises.

Description of device parts

The lower three sensors in a row comprise the ultrasonic radiator, in the centre, and the binaural receivers on either side, one to feed the left ear and the other the right ear. This is essentially the same as the Binaural Sensory Aid (and its various derivatives).

There are some very important subtle differences however. The perception of motion in the wide field of view is accentuated relative to the Sonicguide and the quality of recognition of objects is reduced - as is the case in the peripheral field of the eye compared with its central field. Brabyn (1978) showed that an accentuated direction cue also led to improved control of locomotion relative to a boundary - a useful attribute.

The large central transducer above the radiating element provides the new central narrow field of view which overrides the peripheral field only when "looking" at an object. The object recognition characteristics in this narrow field have been accentuated relative to the Binaural Sensors, following an extensive study on surface discrimination and object recognition using what we call "attribute towers" shown in Figure 4. All these towers can be separately identified when presented at random at arm's length (Kay et al. 1981).

Let us return now to the concept of spatial resolution experienced in the Trinaural Sensor (given this name only to distinguish it from the Binaural Sensors, even though the sounds from it are heard binaurally). When subjects under blindfold were asked to count rods with the combined central and peripheral field the ability to do so is illustrated in Figure 5 which should be compared with Figure 1.

This figure also illustrates the field of view. A cautionary note however, only a very skilled user of the sensor can hope to count this large number of rods, but it is easy to make correct counts, with even less spacing than shown, when the number is 3 or 4 (like used for the Sonicguide or Babies Aid). This is because of the basic process of counting. When doing so we have to know, in transferring attention from one rod to another (visually or aurally) as we count, that we are not missing one rod out or counting the same rod twice. As an exercise the reader should count the rods and holes visually in the photograph of figure 1 and 5 to understand this point. We can resolve the holes and rods easily but counting requires more than this.

When the rods are at different radial distances as shown in Figure 6 the spacing can be even less and should be compared with Figure 2.

Careful experimental tests with six subjects produced the following result.

Resolution of the sensory aids using a 75% correct response criterion, showed that for the central field alone resolution was 9 degrees, peripheral and central field combined gave 12 degrees, the Babies Aid has a resolution capability of 22 degrees and the Sonicguide is 44 degrees.

The sensor is designed for use in a classroom setting and exercises have been developed and tested to show how quite sophisticated spatial concepts can be taught to even kindergarten children. An example is shown in Figure 7.

PILOT STUDY IN SCHOOL

Using the higher resolution capability of the Trinaural sensor we designed a series of exercises in spatial concepts which we feel all workers with sensory aids have sought to teach in some informal way. The exercises serve two primary purposes. At this early stage of sensory aid use by children teachers need to know specifically what can be expected from their students and be able to assess progress. The exercises also provide the means for teacher learning through self exercising and this is very strongly recommended. To be most effective however, two teachers should work together, one acting as a student under blindfold.

The main purpose of the exercises is to stimulate thinking about concepts which can now be relatively easily taught and assessed. These may be compared with the more conventional approaches to teaching "spatial concepts" which do seem to present difficulties in spatial transfer in spite of the considerable effort of a number of workers to change this.

A secondary issue is that of motivation, discussed later. Teachers and students need to be rewarded for their specific effort seen through obvious benefit being derived from the exercise. We have tried to meet this requirement by introducing play activity which becomes more possible as each exercise is learned and transferred to a novel situation.

The first few exercises are given in appendix 1 as an example.

The School Study

The Trinaural Sensor together with materials for the exercises such as shown in Figure 7 were used in a College for the Blind over a trial period of 8 weeks. All teachers who had an interest in the new sensor, and the exercises, were each given a brief (30 mins) introductory experience. Those who wanted to expose their students (aged 5-11) to the exercises were provided with an opportunity to do so during school periods. The usual difficulties of administration, curriculum loading, time-tabling, etc., which mitigate against trying something new were overcome by some of the teachers.

Initially we tested two children who had previously learned to use the binaural sensory aid under earlier programs (Strelow, Kay and Kay, 1978), (Strelow 1980). Both children were able to go through the exercises without any teaching process and got immediate pleasure out of the games. To a child who has learned to use the sensory aid in a mobility role the exercises appear to be trivial as indeed they are to a sighted child of the same age.

Children who had no previous exposure to the sensors responded immediately with pleasure (age 5-11 equally) but the ability to do the exercises depended primarily on age. Learning was rapid for the older children (8-11). For the younger children (5-7) the teachers were somewhat reluctant to become deeply involved at this stage.

Our experience now suggests that if a normal sighted child can do the exercises then there is no reason why a blind child may not also learn to perform the same tasks. What we have to be careful to watch however in designing exercises is to ensure that these do not involve spatial resolution which is beyond the physical properties of the sensor. With this limitation a wide range of exercises nevertheless remains possible.

Reactions to Pilot Study

We are not presenting hard data; this has yet to be obtained through a well planned program. The pilot study was primarily to assess attitudes of school, teacher and student from which we felt we could perhaps make advances after recognising those elements in any program which mitigate against its effectiveness and acceptance.

Students

These were highly receptive. One of the games introduced to the school for a weekend activity 12 months earlier was still being talked about and participants at that time sought to play it again (Kay 1980) even though some were outside the age bracket of the pilot study.

Teachers

The most surprising and rewarding response was the desire on the part of some teachers to explore transfer from the table exercises to a gymnasium exercise in Spatial Transfer using a portable Trinaural Sensor. This latter was not available for the simple reason that such an aid would then be viewed as a "Mobility Aid". We seek to avoid this restricting tag.

There was enthusiasm for the concept we presented from several teachers who had been less than enthusiastic for the earlier program involving pre-school and school children with a sensory aid in a mobility setting (Strelow 1980). In this latter program the teachers were unable to see the benefit of a mobility aid in a school setting. Unquestionably; acceptance was at a significantly higher level for this pilot study.

School

Time and curricula programs provide a strong deterrent to the introduction of something new and untried. Each teacher to be involved should have been given special training. Instead this was restricted to 30 mins practise and two days overseeing every two weeks by one of the authors (N. Kay). A chicken and egg problem; when specific funding is not available for a program and one is relying upon good will, the program has to be seen to be valuable and viable before a school can accept it. Just how does one reach this point without acceptance? - almost as an act of faith being given at the very outset.

It is good to say that compared with our earlier experiences introducing sensory aids to the Blind we found this introduction very rewarding.

SENSORY AID PHILOSOPHIES

Somehow we have to relate this new work to that of the past few years with sensory aids so that we can add to the benefit derived from the experience of others, and not be seen to denigrate their work through highlighting the shortcomings of aids which have of necessity been used.

We feel quite strongly however that much more can now be achieved with children and seek to show this in a way which will integrate experiences with the greatest benefit reaching the blind child. We know that over the next few years sensorily deprived children will most probably grow up without the benefit of this means to acquire a higher level of spatial awareness. Need we say that they will not pass this way again! Why our concern now? It is because we are all aware that development is a cumulative process in which early acquisitions determine the possible direction of events at later stages. There is therefore an urgent need for these children - even those now at school - to be given basic perceptual organizational concepts into which they will better learn to integrate stimulus structures from their environment. Cognitive development can then proceed, as interaction with the environment provides more and more experiences, gained from integrated feedback, then linked to a firm basis of auditory structuring - the blind child's only distal sensory modality.

An artificial auditory system, with the same formal properties as natural information so that a child will start making sense of it and learn to coordinate it with other sensory outputs, should allow this to happen (Bower 1977). After all, blind children become very sensitive to their natural echolocating system which is seemingly unnatural to the sighted child. It is also slow to acquire, difficult to perceive, and not very effective.

As with visual perception, in order to perceive a three dimensional world the important independent variable is perceptual organization and not the stimulus itself. The importance of active participation in learning to structure the external environment is well known. The child must be able to perceive it adequately. We believe the artificial sensor goes a long way in this respect.

Of course, the age at which we need to start giving children these artificial auditory experiences is, in principle, as young as practicably possible. We have to find the mechanism for providing this which means solving the social problems created by established attitudes. There are workers for the blind who feel that reliance on natural ability is a primary goal and there are those who are defensive about their role in placing a new technology in the hands of the child. In doing so they are denying the child an enhanced spatial awareness with which to learn.

We challenge those who would deny the viability of a sensory aid in enhancing spatial awareness and we do so in the full knowledge that there are some who believe that they have carried out experimental programs and shown our earlier concepts to be inadequately based (Shingledecker and Foulke 1978; Shingledecker 1978). They have not suggested alternatives. We believe that we now have available (in the sense that it exists) the means to greater expectations in blind perception than ever before and children should no longer be denied these.

We again emphasize that a non-visual prosthesis to spatial sensing for a blind person has to be non-obvious. We put the problem this way to highlight what we see to be a fundamental one which we are all failing to tackle, that of the introduction of high technology to a non-technical group of generally protective humanists who seek assurance from unbiased scientists that all is well. How do the scientists give this assurance? It must be realised that any effective spatial sensor for the blind must incorporate sophisticated technological concepts and techniques for sensing the highly complex environment of this visually organised world and breaking it down into an adequately organised cognitive schema. Foulke makes this point well (Foulke 1970). Mere object detection by whatever means is not enough.

We are well aware that those who care for the visually handicapped are not technologists and for the most part seek to stay well away from anything that sounds technological, unless they are already familiar with its function, having experienced its evolution. This may seem very puzzling when we are all constantly using greater and more complex technology in our own daily lives (consumer electronics for example), but then we have experienced its evolution. Given a strong enough need for ourselves we are, for the most part, prepared to accept the technologist's answer to that need. The technologist then becomes acceptable. Are we then saying we are unwilling to have the same acceptance of technology allowed to those for whom we have a responsibility and who have a much greater need of it? Surely, we have an obligation to bring the best that technology has to offer to help in this vital area of spatial enhancement to blind children (provided we can afford it, of course)?

Let us now make comparisons with the Thalidamide children and those who are helping them to get into the mainstream of life. Where there is a missing limb this has to be replaced, and it is done, regardless of cost or the degree of sophisticated technology involved. It is wholly accepted by the non-technologically orientated teachers of the physically handicapped because the function it performs is so obvious. They still however need and accept considerable support from the technologists.

Now, those who care for children who are unable to function adequately due to the severance of the visual link with the world must inevitably accept that, in principle, if progress is to be made today a non-obvious technology has to be given the utmost acceptance to allow it to become familiar and thus become an integral part of the process of meeting the needs of this most crippling handicap. There is no way of replacing the human eye which would be the obvious solution. It remains to be said that we must turn to an entirely novel mode of providing spatial enhancement. That is, a novel mode for the human child, the animal world has been using it for millions of years.

ANIMAL SONAR

Bats are blind and use only their ears to get about. Before the 18th Century observers thought them to be sighted because of their searching behaviour. Now we know that their spatial organisation is acquired in part due to acoustic sensing coupled with flight attached to mother. The baby bat seems to have no problems in learning even though it does not itself interact with its environment, except by acoustic means, before free flight (Kay and Pickvance 1963). We believe that this is because it is theoretically possible to combine some form of kinesthetic feedback with auditory sensing to gain spatial organisation. Some talented blind do so through natural echolocation. An acoustic spatial sensor, which is ten times better than this in terms of sensing information and resembles the bat's sonar would seem capable of forming spatial schema through a combination of kinesthetic and acoustic feedback, provided:

a) the human brain is adaptive to this process
b) the experiences are correct for this schema construction.

What we hope to show is that the new sensor correctly introduced to the field of blindness and particularly schools where blind children are being taught, can bring about the social changes we need in a gentle and more long-term effective way than attempting to introduce procedures for infants. The benefits of the sensor might then reach those who need it most, the very young totally blind child struggling to develop.

Let us first look at what has been achieved using the Binaural Sensor to get some feeling for why we make this suggestion.

BINAURAL SENSORY AID EXPERIENCE

It might be asked why the Canterbury group used the Binaural Sensor when it was known that its spatial resolution was limited. The answer is simple. We started with children who needed to become mobile and set about testing our ability to bring this about. The aids were appropriate for this purpose (Strelow, Kay and Kay 1978). Strelow (1980), Harris and Muir (1979) subsequently preferred a wide angle sensor for their work with infants whilst Schwartz (1978) sought an aid with a narrow field. We made some compromises and the "Babies Aid" was the outcome. The "Children's Aid" was essentially a mobility aid.

Others (Bower 1977, Newcomer 1977, Ferrel 1980) used aids provided commercially relying upon existing technology to test their own theories on artificial spatial perception. Thus the experiences gained do vary and controversy exists over some of the results. Those who seek to understand the results fully also need to understand the sensors used. Our role here is to draw attention to some features of the various sensory aid programs which we feel relevant to our primary argument.

It is evident that:

1) Work with older children (5+) has produced very positive results and generally strong support from parents and agencies (Strelow 1980; Newcomer 1977). They can gain improved mobility compared with cane alone.
2) Work with infants is largely indeterminate but a proportion of parents have been left with the feeling that the use of the aid was distinctly beneficial and some irrefutable responses from the infants show that they were aware of the presence of objects and responded to the stimuli from the sensory aid. No really negative

result has been reported except where a child would not wear the aid. This has occurred only with inadequately designed headbands. Some children have developed along lines comparable with the sighted child (Harris and Muir 1979).

3) Work with children in the age bracket 2½ - 5 shows great promise in that some children who were either severely delayed developmentally or had acquired serious locomotor blindisms, had their deficiencies in mobility corrected to the extent that in one notable case mobility was seen to be out of keeping with intellectual level of achievement.

We have been forced to the conclusion that, bearing in mind the technological limitations of the aids and services provided to workers, as well as total absence of any instructional material, a great deal has been achieved. All who have been involved see where improvements in technology and training procedures can bring about significantly better results.

We have to ask the questions: (1) "Would the new Trinaural Sensor make any difference?". (2) "Could the same results have been obtained relying upon improved stimulation programs, particularly auditory stimulation as provided by Harris and Muir (1979), and Schwartz (1978)?"

NATURAL VERSUS ARTIFICIAL AUDITORY SPATIAL SENSING

It was stated earlier that the acoustic spatial sensor is some ten times better than natural auditory spatial sensing using audible echos. A simple, but we hope realistic, way in which this factor of ten is arrived at is to compare the wavelength of the sounds made by animals to the wavelength of the sounds humans can use. The bat uses sound for echolocation with a wavelength which varies over the range from 2 - 5 mm. Human hearing responds to sound with a wavelength ranging from 20-2000 mm. It is a simple matter of basic physics to show that the shorter the wavelength the greater the spatial detail which can be perceived. So we can say that the spatial detail which can be perceived by the animals is up to 10 times better than natural human hearing can provide even in the congenitally blind who use their ears to the maximum.

The need and the means to fulfill this need is that of increasing the degree of spatial detail from the low level of natural human hearing to the higher level of the animals who depend, some almost entirely, upon auditory perception. This is precisely the purpose of all our ultrasonic spatial sensors. Studies of man-made ultrasonic sensing systems (sonar) and electromagnetic sensing systems (radar) have shown that we can do no better than copy nature in this respect. Even very sophisticated electronic systems using complicated methods of display for commerical and military purposes and relying upon vision to link up with man's brain seem to do no better than the animals who use their natural echolocating capabilities. Of course when we have to rely solely on auditory or tactual links with the brain instead of vision as in the case of the blind, we cannot in any case use these sensing systems with sophisticated visual displays. Fortunately for the purpose of the blind it happens that reliance, instead, on nature's own solution for the animal world, i.e., optimum use of hearing, turns out to be superior to all other methods of spatial perception so far produced. The particular feature of the ultrasonic sensors developed at Canterbury is their resemblance to the animal sonar (Mackay 1980; Kay 1980).

Thus we can say in simple terms that blind children may now enjoy the benefit of man's ingenuity in harnessing nature's experience to produce a technological aid with sensory characteristics in some ways comparable with those used by animals which have evolved their own sonar as a means of survival.

EXPECTATIONS

A problem we all face in the introduction of a spatial sensor such as the Binaural Sensory Aid is the unrealistic expectations from children using the sensor. One experienced psychologist working with a baby using the sensor believed that, because the stimulus presentation was binaural, the baby would experience true localisation of the echos. This cannot be so even though we would very much like this to happen.

Externalisation of the sounds presented through the miniature earphones does seem to occur with experience but this is not the same as localisation in natural hearing.

The recent literature and reports of children using the Binaural Sensory Aid in the form of the Sonicguide, Canterbury Children's Aid, or the Canterbury Aid, also indicate that in some cases more was expected than was physically reasonable from these aids (Newcomer 1977, Ferrel 1980, Strelow 1980). No one reported in these projects the limits of spatial perception of each of the aids they used such as we have just done here. We suspect most researchers did not even investigate this themselves by using simple objects, before planning programs and exercises for these children. Only Strelow (1980) showed an acute awareness of these limitations.

One notable experimenter (Bower 1977) came to the conclusion that because the child's brain was coupled to the spatial sensor through the auditory sensory channels it could, and seemingly did, perceive more than an adult was capable of with that particular device and in an incredibly short time. His argument was that, irrespective of the physical limitations of the sensor, the brain/sensor capability would exceed these. The fact that he, as an adult, could not do it, he didn't consider relevant, so he tried the baby with the task. He attributed his results to the extraordinary capacity of the developing human brain in the baby to use the information from the sensor and apply it to the perceiving of its over-complex environment through the entirely novel medium of acoustics. Logically a basis for this argument could have been that animals who use sonar systems in place of vision appear to do better than our understanding of such systems would suggest possible (Busnel, 1966). Thus it is quite likely that children growing up with an alternative mode of perceiving their environment in the form of a spatial sensor could exceed our expectations. He omitted to take into account the adaptive biological sonar capabilities of an evolved system which the animal enjoys. Children may well do better than adults in the end but the issue remains open. We would caution those who would venture to use sensors that only devices designed to be effective for the specific tasks they have in mind should be used and that they should test this first. We urge that advice be taken from experts in design of devices suitable for use by children of different ages and also for different purposes, e.g., concept training, pedestrian travel, games activity, etc. So far no one seems to have been able to do this except at Canterbury. Our evidence now (in recent months), reported earlier, suggests that children in some of these programs were actually presented with ambiguous situations which would be difficult to resolve. There must have been confusion in the mind of the child and therefore learning from this experience could not be cumulative. As we are all aware, learning takes place best from repeated exposure to repeatable events and experiences, so it must have followed that if the events could not be correlated over time, learning could not take place.

VARIABLES ENCOUNTERED IN SENSORY AID USE

1. Etiological factors

It is also true that learning will take place only if both the environment and the means of sensing it are fitted to the task. The need is therefore to provide the child with opportunities for experiences commensurate with her level of cognitive functioning and then let her do the experiencing. for example, there is no point in attempting tasks for which she has an insufficient language capability or has not reached that stage of learning. At the beginning the need is for sensing the immediate environment and the isolation of any extraneous information which will cause confusion in the early stages. It is probably for this reason that Strelow came to the conclusion that the Canterbury Aids were most suited to mobility exercises (Strelow 1980).

2. Motivation

Another problem encountered by workers with blind children is in the area of motivation. When we discussed providing the blind with comparable means of sensing to that of bats and porpoises we only draw this analogy to a limited extent. The needs of the animal are very different from that of the human child. The animal's greatest need is that of obtaining food for survival and it has adapted its sensing system to perform this task to a very high degree of accuracy. With the blind child there must be very different needs and a very different attitude towards learning to acquire an adequate knowledge of spatial perception. This poses a great challenge to us in the promotion of motivational attitudes. One researcher (Strelow 1980) reports that motivation to learn independent skills are generally very low due to a number of factors. These included attitudes of parents and teachers who gave low priority to spatial orientation and later to that of gaining travel independence. We have now a powerful tool for facilitating enhanced spatial skills but the use of it may still rest with those "significant others" surrounding the area of learning to use it. Blind children will learn to perform spatial tasks if provided with the right tools and reason to use them. The degree of control by parents and teachers however may be the determining factor.

3. Role of teacher and parents

There really has to be strong justification for witholding what seems to be a powerful replacement link between the visually impaired and the physical world. Even so, a child must be motivated to explore and interact at times when parent or teacher are not actively involved. This is not a trivial matter. Since the spatial sensor cannot be likened to visual perception, the visual stimuli which motivate the sighted child are missing. The auditory stimuli alone have not proved sufficient to motivate the children using the sensor to learn on their own. They require additional stimuli or some form of play has to be designed which is made more challenging and enjoyable through the auditory sensors. This to some extent determines the age at which a child can usefully be introduced to the sensory experience.

An experiment in testing our ideas on motivation taught us some interesting facts (Kay, N. 1980). We found that totally blind children naive in the use of the Babies Aid, not only learned to respond to the sounds from the sensor in a matter of minutes, they also learned during the brief period of one weekend to completely play a reaching and building game. Their motivation was increased dramatically compared with chidren we have otherwise worked with. Teachers in the school were generally impressed with the results, they have welcomed us back for further studies and after almost twelve months the children still talk about the "Sonic Tower Game" they played.

FUTURE

It is one thing to discuss a sensor and the role it may play in the development of a child. It is quite another to provide the sensor - it has to be manufactured according to a market requirement. This is not yet established. We shall pursue various avenues exploring this aspect of sensory aid service.

What we feel is probably more exciting, so far as those who seek to motivate the blind child are concerned, are the development of microcomputer controlled spatial sensing games incorporating the spatial concepts we believe to be important and which simulate the ultrasonic sensor. Such games would then serve a double purpose - they would motivate the child to use the spatial skills it has learned, and programmed exercises would reduce the need for constant teacher supervision. These games are under development.

NOTE: Anyone interested in this program approach should write to Prof.L.Kay.

MANUAL OF EXERCISES IN ACOUSTIC SPATIAL PERCEPTION

ACOUSTIC SPATIAL SENSING

Introduction

We sense the presence of a world outside us only through our five sensory inputs. They are all important to our life-style and when one is impaired there is an inevitable change in the quality of life. This manual is concerned with the impact of blindness and the means to alleviate its devastating effects through increased spatial perception and the development of spatial schemas.

There are many ways in which a blind person can be aided through various services and these are not questioned. It is essential however that every effort be made to help a blind person develop an independent life-style, and this includes an ability to travel, to the extent that it has been shown possible. This is because the inability to travel independently imposes a general limitation on personal effectiveness, regardless of the other particular abilities an individual may be able to demonstrate.

The primary purpose of the sensor used in the exercises in this manual is to increase a blind person's spatial perception of the world around to the highest level possible so that all the means to greater independence can be exercised to the best possible degree.

It is argued here, very simply, that the spatial awareness of any blind person using natural sensory inputs is insufficient for achieving an adequate degree of independence. The technological aids now coming available can more effectively help in overcoming the sensory deficit. Only if children are exposed to them at an early age can they develop a high degree of spatial orientation upon which to have independence by the time they need to live their own lives.

The lessons are designed in an educational form to help a teacher get started using a spatial sensor, but over a period of time it is expected the methodology may change to a more effective mode using experience gained from all those engaged in this project.

The exercises are intended to induce purposeful interaction with objects and events. It is essential however that the application of these activities match the subject's level of language skills and reasoning ability. In other words, make sure that the subject understands the questions asked and is physically capable of performing the tasks presented. Also, a task should not be attempted if the child has not reached the age at which a sighted child could be successful.

Only through exploration and manipulation of objects and events will a child gain understanding of the relationships between the sensory information now provided from an aid and the surrounding space.

The unique experience of teachers of the visually handicapped children, through their constant interaction with the children as they apply the new sensory information to entirely new tasks, should produce valuable data needed for further research. It is hoped that day by day records will be kept so that this experience is not lost. It is also hoped that suggestions will be made and comments offered for improving any aspect of this programme.

Exercise 1
OBJECT ORIENTATION
Object Position

Objective	To perceive 1 object within reach on a table, develop a schema of the object in space and reach towards it in order to acquire accurate grasping. This will lead to searching head movements and body relationships.
Materials	Rod with felt base on smooth-top table.
Method	Place rod in centre of table within arm's reach and encourage subject to search left and right with head to locate direction of rod. Have subject reach to grasp base of the rod. With subject grasping the base of the rod move the rod about in the field of view of the sensor; first towards and away from subject to demonstrate the effect of changing distance: second, left and right to demonstrate the effect of changing direction. Practice over a period of Lessons placing rod in different positions and having subject grasp base of rod for each position.

Instruct subject to turn head slowly from left to right so that signals are heard first in one ear then the other. Demonstrate the central cue of louder clearer signal when looking directly at the rod.

NOTE: Do not spend more than 10 mins on any one exercise. Give a break between exercises with sensor switched OFF.

Exercise 2
OBJECT ORIENTATION
Object Position

Objective To perceive 2 objects within reach on a table develop a schema of the objects in space in order to make a choice of which to grasp. This will increase head searching, improve body relationships, and induce decision making using sensor information.

Materials 2 rods with felt bases on a smooth-top table.

Method The rods are placed 30 cms apart at the same distance from the subject within arm's reach. Subject is to be encouraged to turn head back and forth from left to right so as to observe first an object on the left then one on the right with nothing in between.

NOTE It is important that the teacher ensure that there are perceived two distinct and separate objects otherwise the subject could be confused at this stage.

Have subject grasp the base of each rod in turn first with the right then left hands. Then grasp both together looking at first one then the other rod.
After practice have subject point to the rods in turn, then check that the direction of pointing was correct by reaching and grasping the rod.

Exercise 4
OBJECT ORIENTATION
Spatial Transfer

Objective To learn to use a schema for one object space and transfer this to a smaller object space.

Materials 2 rods with felt base, board for placing pegs (six holes), and two pegs. Use smooth top table with peg board in front of subject.

Method Place 2 rods on table at arm's reach from the subject so that their position can be checked by the subject as in exercises 1 and 2. Place 2 pegs in board at the same position as the rods then have subject check with hands where the rods are placed and where the pegs are placed. The peg board represents the object space (table top) and the peg the objects (rods) in their positions on the table.
Using sensor have subject relate the positions of the rods with the sensor sounds as in exercises 1 and 2.
Remove pegs and have subject place pegs as follows for
1) 1 rod in 4 positions represented by holes in peg board.
2) 2 rods one on the left and one of the right at the same distance representing farthest holes.
3) 2 rods one left and one right representing nearest holes.
4) 2 rods one left in near position and one right in far position.
5) Reverse of No. 4.
Practice the placing of pegs until subject is familiar with the 4 alternative positions for the pair of rods.

Then choosing positions one at a time in varying order have subject place pegs in board to represent rod positions.
Test ability over a period of time during lessons.

(See Exercise 3 - Figure A)

NOTE: Accuracy of rod position is less important than obtaining clear indication of relative position so that transfer is easy to learn.

Exercise 6
OBJECT ORIENTATION
Spatial Transfer

Objective To increase accuracy of spatial transfer.

Materials Rod board and peg board with (7 x 7) peg holes modelling the rod board holes.

Method Commencing with 2 rods in positions used in exercise 3 which corresponds to 6 hole peg board increase difficulty of spatial transfer. To do this first use the rods in the outer holes to left and right and vary their relative positions until subject is able to transfer to peg board accurately.
Next use reduced left-right spacing (4 holes between left-right rods). Gradually bring all holes into use until subject experiences difficulty in transfer. DO NOT PLACE RODS CLOSER THAN 2 HOLE SEPARATION.

PRACTICE OVER EXTENDED PERIOD OF TIME.

(See Exercise 4 - Figure B)

Exercise 8
OBJECT ORIENTATION
Object Discrimination

Objective To establish an ability to discriminate between two similar objects close together in distance or direction.

NOTE This is an advanced exercise but the task is one a sighted child would find easy at the appropriate age.

Materials Rod boards with holes in an arc at different distances.

Method This exercise is also arranged to increase in difficulty till a limit is reached beyond which a subject cannot progress. The teacher is strongly advised to test this limit personally wearing the sensor. The limit is reached only after considerable experience and will not be the same for all subjects.
Commence the exercise placing rods in the two most widely spaced holes and have the subject look in turn at the left and right rods. There will be no signal in the central position.
If the subject experiences a problem switch off the two outer channels (peripheral channels) till the signals are heard clearly at the left and right positions.
Next place a rod in the central hole as shown in the diagram; that is in the nearest arc so as to produce a different distance cue. Again have the subject scan left then right to perceive the three rods. Vary the number of rods by leaving out one or two and have subject count the number of rods. Proceed to increase the difficulty, as each task is seen to become easy, by using the suggested arrangements in the diagram. Constantly check the increased ability to perceive more rods by requir-

ing the subject to count the rods as the number is varied. The limit will be determined only after several sessions.
NOTE: As the number of rods is increased and the separation is decreased the subject will start to make errors because of counting a rod twice or missing one already counted. This is the limit. Reducing the number of rods but keeping the spacing the same may improve counting accuracy at this stage.

(See Exercise 8)

Exercise 14
OBJECT RECOGNITION
Surface Discrimination

Objective

a) To recognise acoustically 6 different surface structures.

b) To differentiate between surface structures through the medium of acoustic signals.

c) To recognise and name surface structures by their distinctive acoustic signal.

Materials ATTRIBUTE TOWERS, POLE-BOARD

Method

A single "Attribute Tower" is presented and subject invited to listen while slowly rotating it with hands well below the "viewing level", i.e., holding the base of the tower only.
Begin with Hardboard (H.B.) then Carpet (Shag Pile) in its place, point out the differences in sound, particularly as the corners come into focus and away again.
Continue presenting all six surfaces but not in the same lesson. Allow subject to feel the surface after listening to familiarise her with her already acquired vocabulary covering these surfaces.
If the subject wishes to re-name the Towers to correspond with the auditory image evoked then let her do so. The instructor using both descriptions from then on.
It may be helpful to relate Tower surfaces to groups of auditory imaging:-
a) Hard/Soft b) Clear/Mushy c) Single tone/multiple tone.
2 "Attribute Towers" are presented, sufficiently far apart to allow acoustic scanning of each (i.e., using the holes at the farthest outer edge of the board).

a) Begin with the 2 surfaces which offer the greatest difference in sounds - H.B. and Carpet (Shag Pile). The instructor will explain how to rotate each Tower in turn, listening to every aspect of it as it changes, the full flat surface, corner coming into auditory focus, corner facing squarely, then slowly fading as the next flat surface comes into full view.
MAKE SURE THAT THE HEADBAND IS CENTRALLY PLACED.

b) The Carpet (S.P.) will be replaced by another surface Wood Chip (W.C.) and the same procedure as in a) is followed. This will be repeated with each tower, always keeping H.B. as a comparison. As each new surface is presented the subject is asked 1) whether it is different or the same as the H.B.? 2) To which group does it belong? 3) Can you name it?
At this stage do not insist on accuracy in naming. It will be sufficient if subject can "group" her answers.
Where difficulty in recognition occurs it may be useful at this point for the instructor to change over with the subject, allowing her to listen on the monitoring set. Then as each tower is rotated by the instruc-

tor the meaning of sound changes can be explained.

Repeat the presentation of each Tower, this time asking for the NAME of each surface. This is a difficult exercise and 50% correct will be considered good at each lesson.
Note which "Towers" are confused and present them at the end of the test, pairing them with other least similar ones.
The purpose of this exercise is not only "surface recognition" but also the importance of maintaining "tonal" distinctions throughout different aspects of presentation - corners sound different to flat surfaces. In a broader sense we are introducing a facility for conservation in a dynamic transformation situation.

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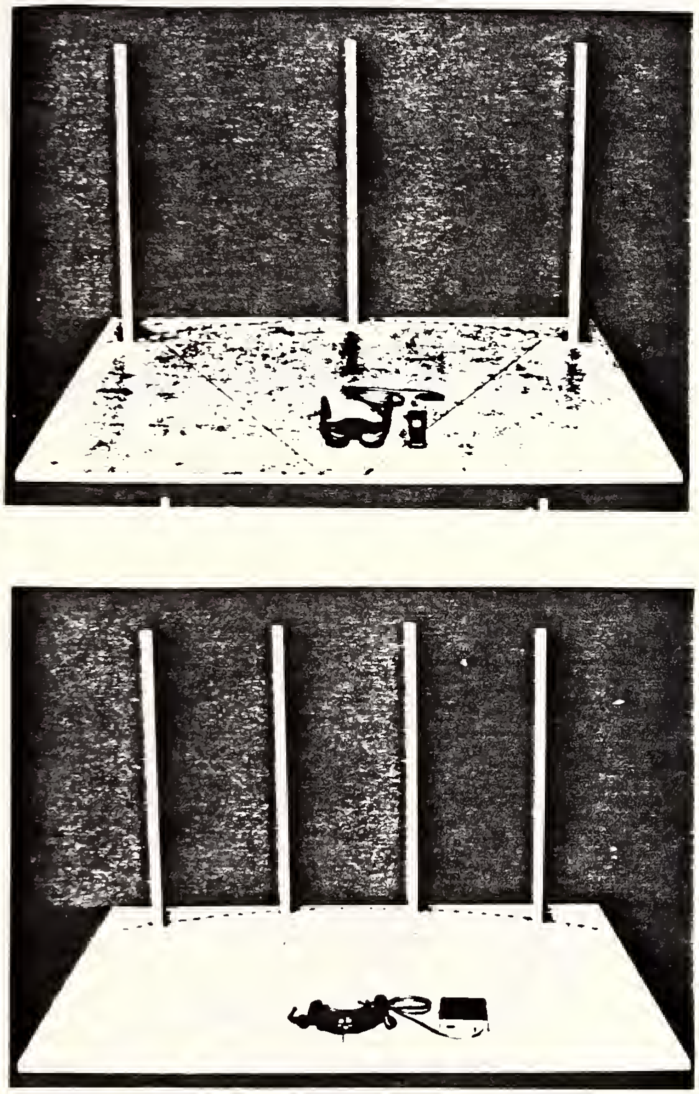
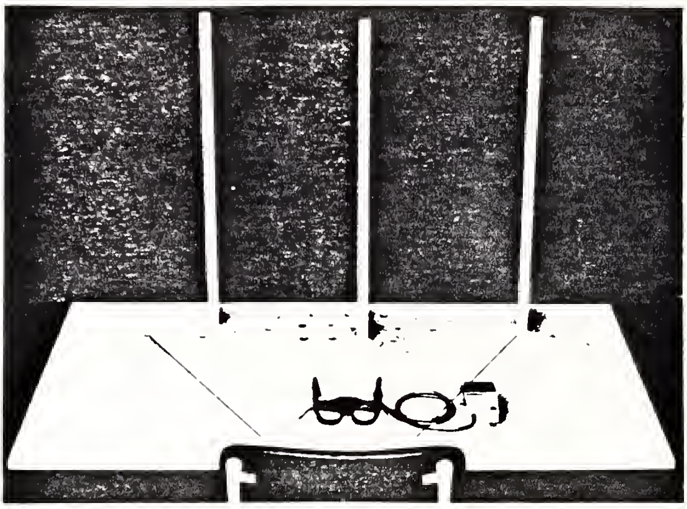


FIGURE 1. SPATIAL RESOLUTION OF RODS AT SAME DISTANCE USING DIFFERENT SENSORS.



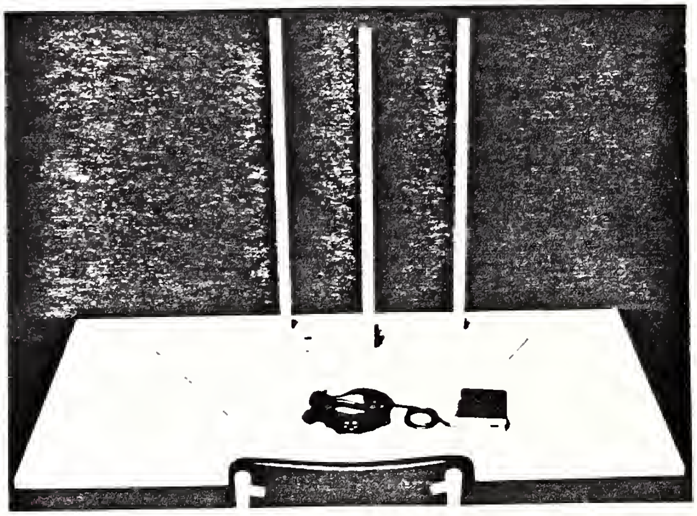


FIGURE 2. SPATIAL RESOLUTION OF RODS AT DIFFERENT RADIAL DISTANCES.

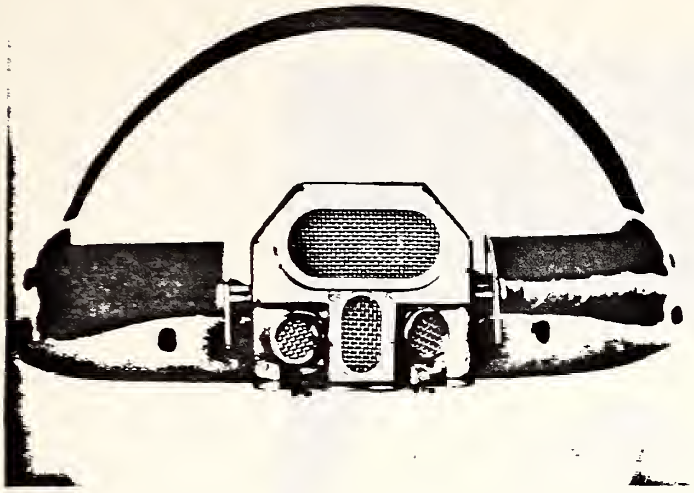


FIGURE 3. THE "TRINAURAL" SENSOR

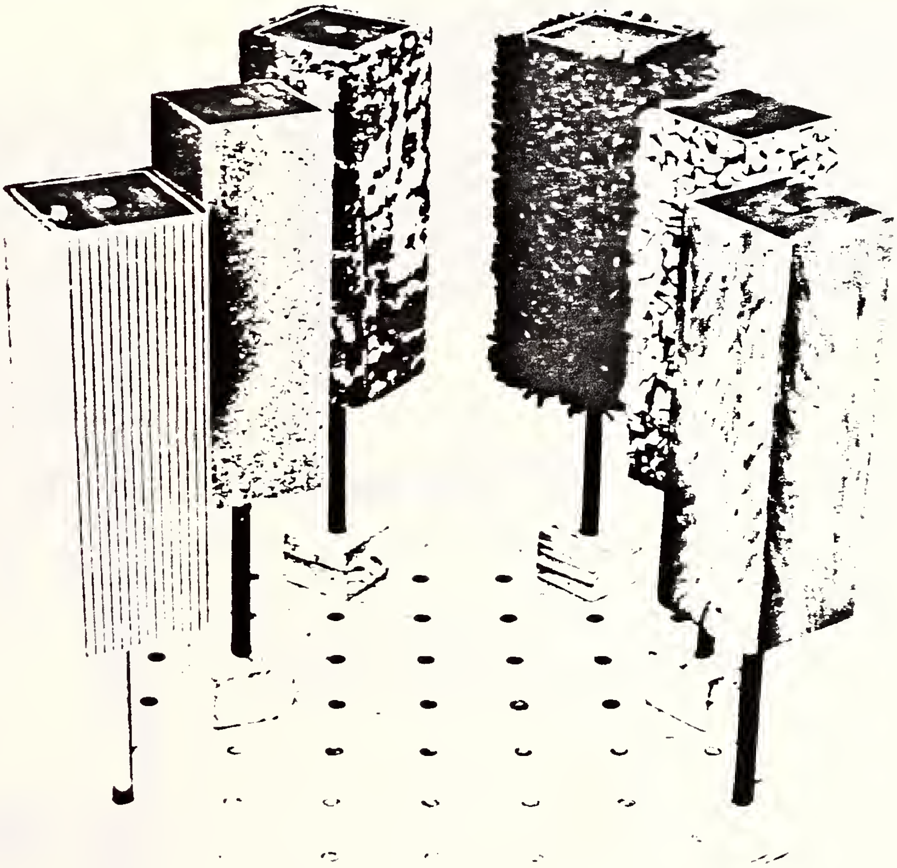


FIGURE 4. ATTRIBUTE TOWERS FOR SURFACE RECOGNITION EXERCISES.

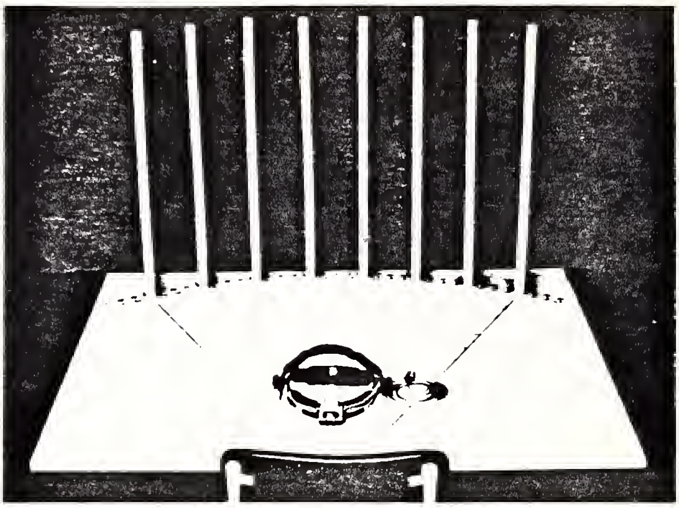


FIGURE 5. SPATIAL RESOLUTION OF RODS AT THE SAME DISTANCE USING THE "TRINAURAL" SENSOR.

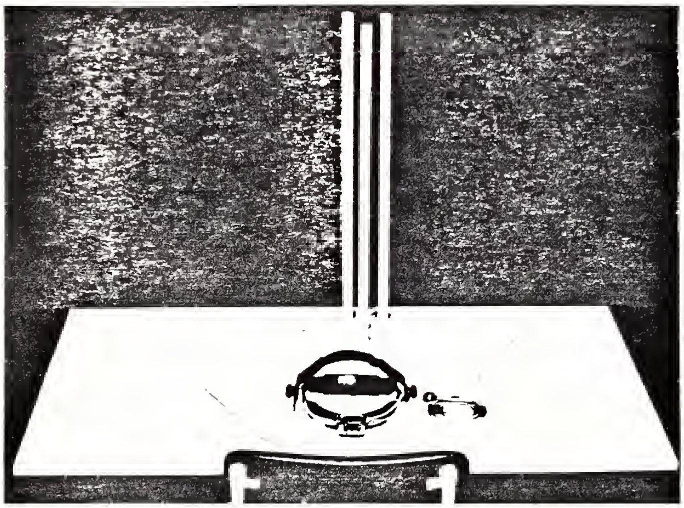


FIGURE 6. SPATIAL RESOLUTION OF RODS AT DIFFERENT DISTANCES USING "TRINAURAL" SENSOR.

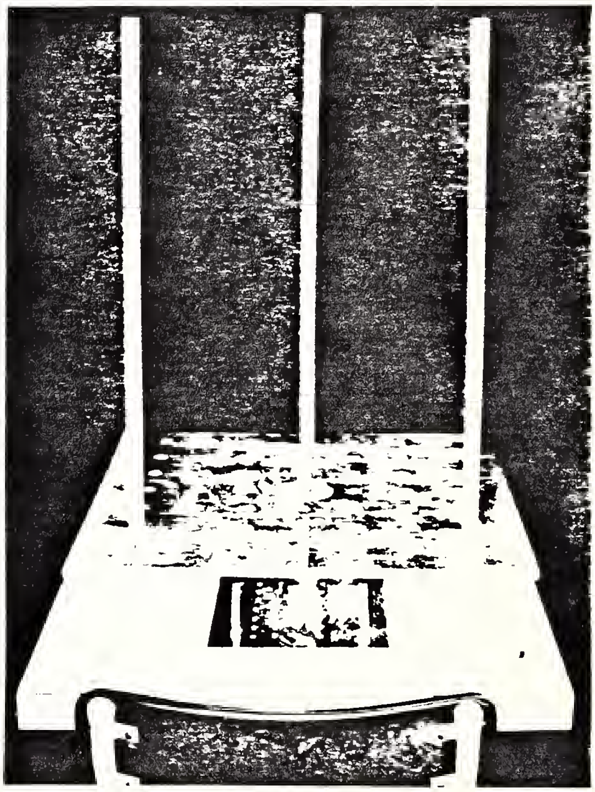


FIGURE 7. ELEMENTARY SPATIAL TRANSFER EXERCISE U
SENSORY AID TO LOCATE RODS.

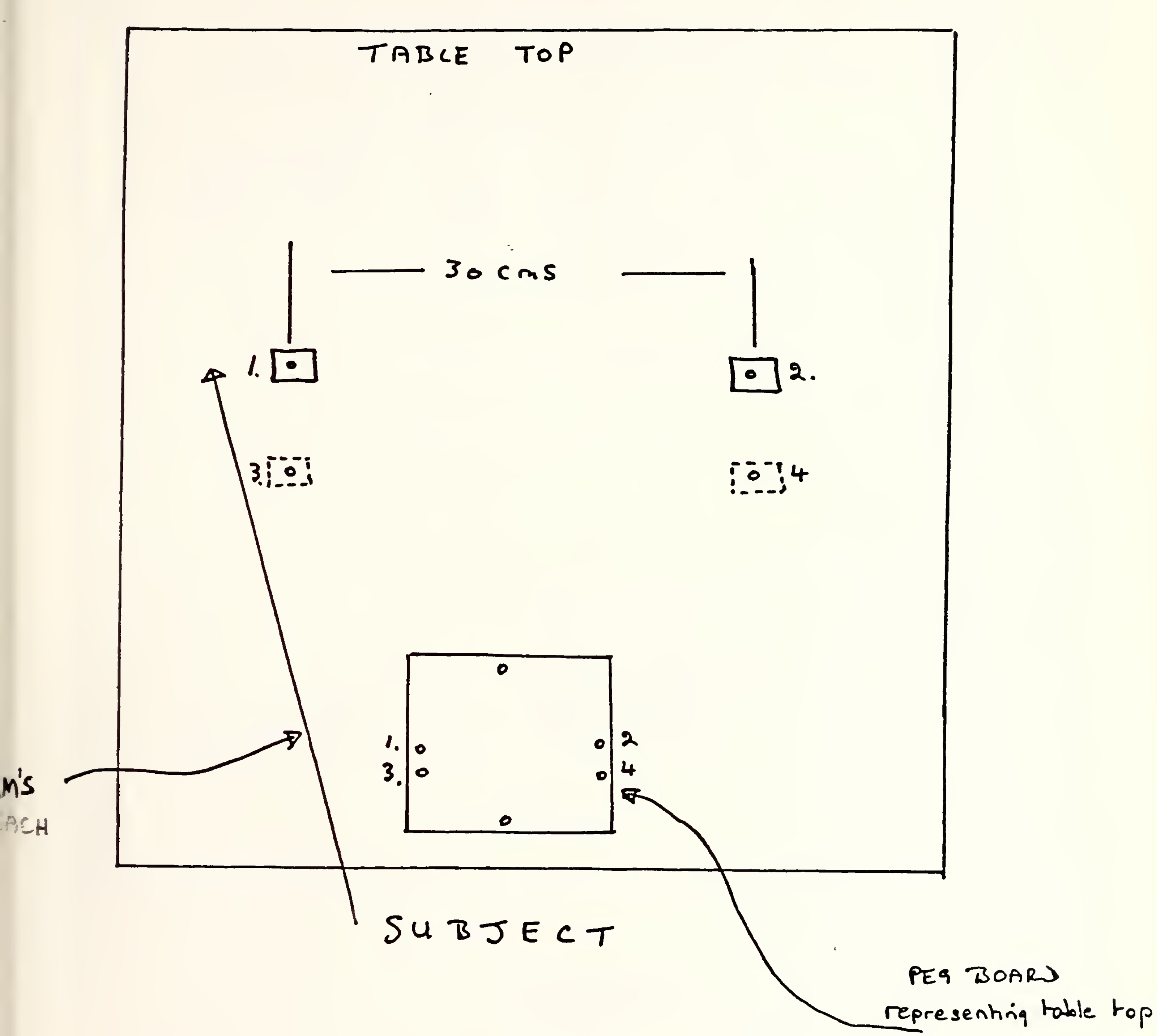


TABLE TOP
30 cms
1.
2.
3.
4
1.
2
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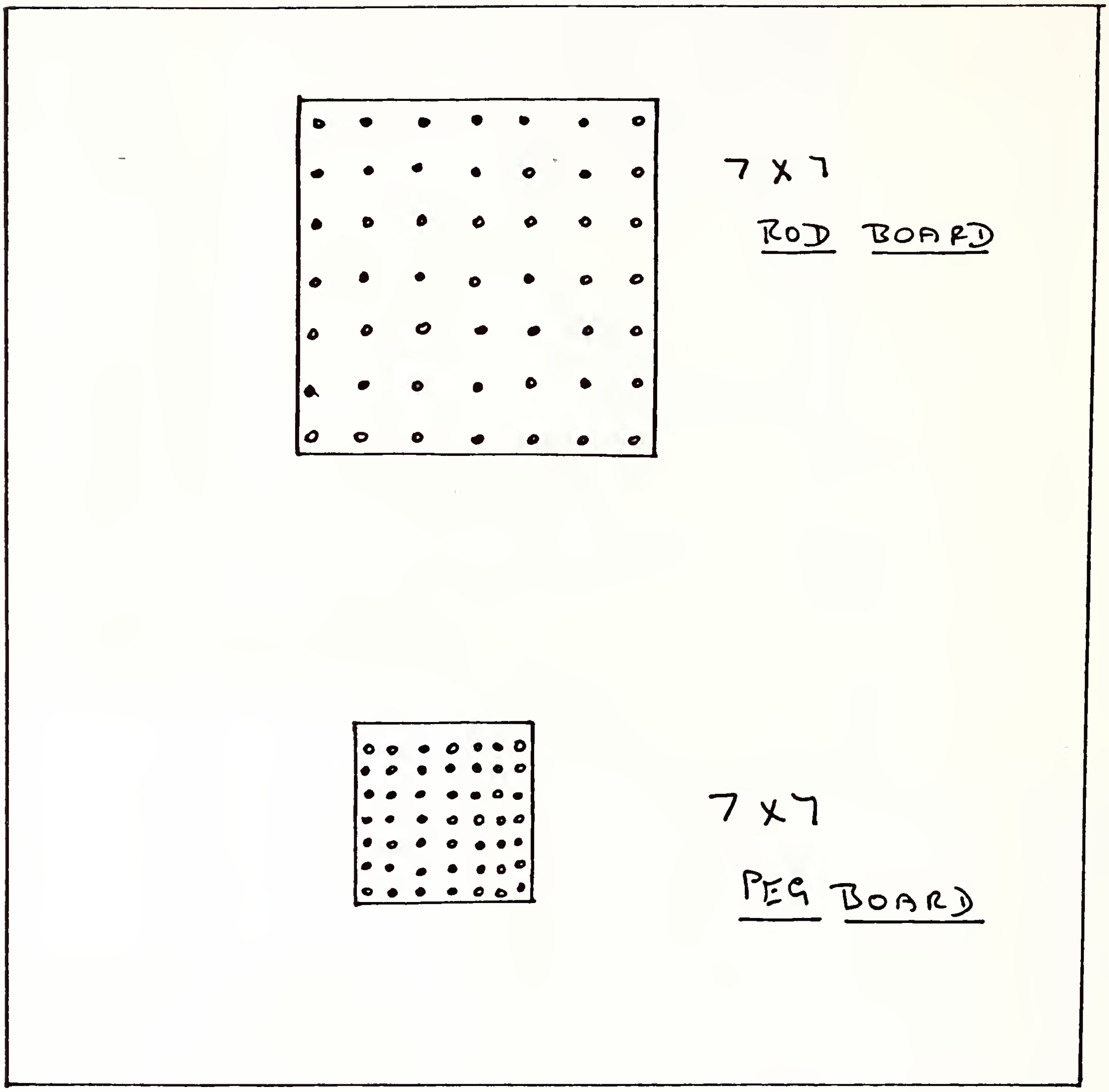

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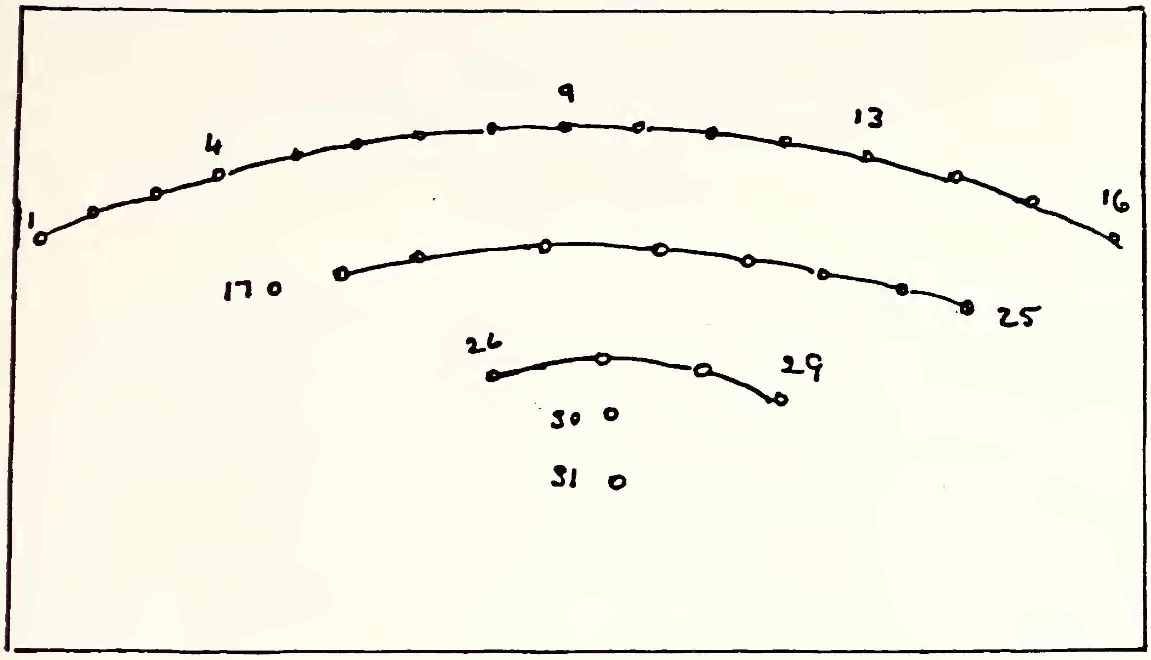

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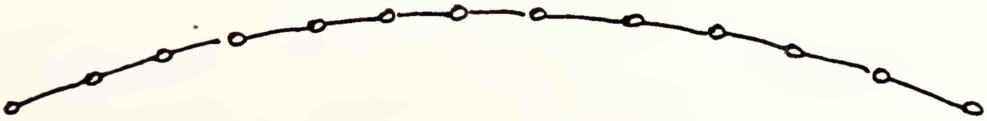

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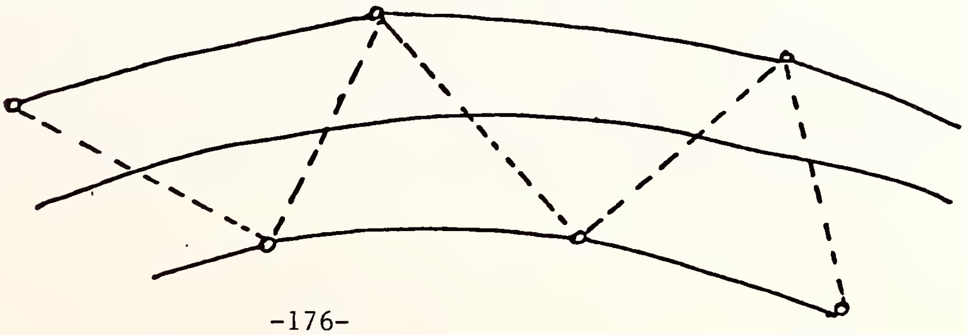

PERCEPTUAL LEARNING IN THE USE OF ELECTRONIC SENSORY AIDS BY BLIND CHILDREN

Edward R. Strelow
David H. Warren
(U.S.A.)

I wish to give a brief overview of the use of electronic spatial sensors of the Binaural type and some of the research with children and adults with which I was associated while working in Kay's laboratory in New Zealand. Subsequently I will discuss some of the recent work I have been involved with working with David Warren at Riverside. The basic argument of this paper is that the use of electronic spatial sensors by blind children is a complex field of study that depends on knowledge in areas of perception and child development that are not fully charted. We have prepared a research program that will provide basic information in these unknown areas but which will remain oriented to the applied use of spatial sensors with children.

Our interest is in acquisition of spatial skills and mobility in blind children, with particular reference to the use of environmental sensors such as the Binaural Sensory Aid to assist these skills. There has been an increased emphasis in recent years in dealing with the problems of the handicapped at an early age, rather than leaving them until adulthood. As well, there has been a general trend towards the integration of blind children into the mainstream of education, so that many blind children are coming to face the problems of independent travel at an earlier age than had been customary for children in more sheltered environments. Environmental aids, such as the Binaural Sensory Aid, offer promise for use as tools in the development of advanced skills in perception and mobility. An important prerequisite, however, is the development of training programs based on knowledge of the perceptual development of blind children, and of the perceptual problems posed by device use. None of these areas is well developed, and we propose a broadly-based research program centered on the application of electronic spatial sensors, but recognizing the need for prior basic research into important areas of perception and development.

The State of Current Research

Technology

The concept of an electronic environment sensor has seen considerable development in the last twenty years, particularly in the work of Kay, originally in England, and later in New Zealand. This work began with the Sonic Torch, a hand-held, single-channel device and led to the present Binaural Sensory Aid (the commercially licensed version is sold as the Sonicguide), a head-worn device, with explicit distance, direction and object-type information. Experimental versions of the Binaural Aid are available with variable range and field of view characteristics which may allow particular skills to be performed which would be difficult with a conventional aid.

Behavioral Research

While the technology of electronic sensing devices continues to advance, behavioral research with such devices is considerably less advanced and has not, by and large, come to terms with the fundamental questions of perception and learning, entailed in the use of such sophisticated sensors. Basic assessments have taken place with adults showing that the devices are useful in a variety of common street situations, and practically-oriented training programs have been developed. However, detailed analyses of the levels of skill and the psychological processes of the user have not generally been performed.

One area which has received study in Kay's laboratory in Canterbury has been locomotor control, i.e., the ability of a user to guide himself by sensing the positions of objects around him. Using an electro-mechanical system of some complexity it was possible to measure the accuracy of control of movement with a variety of sources of information, visual, auditory and using binaural-type information.

While it must be emphasized that these are laboratory tasks, not street travel, control using the Binaural system is surprisingly good, superior to the best obstacle sense of the blind and generally more like guidance around sound-making objects, and even visual control.

The direct relevance of adult-based research to work with blind children is not clear. If an aid allows street travel or locomotor control with adults, this probably indicates that there is a potential for use with children. However, there are substantial differences between children and adults in terms of their capabilities and motivation. For example, screening procedures generally assure that adult users will be highly motivated volunteers with substantial experience of independent travel, usually with a long cane, prior to device training. With such general mobility experience, adult users can virtually teach themselves the use of the sensing device, in the course of their own travels, after comparatively little formal instruction. However, blind children have neither the underlying spatial understanding nor the basic skill in travel that adults have. Therefore training procedures for children must be much more focally addressed to developing relevant perceptual and cognitive skills related to these areas than would be true with adults. In particular, the absence of significant independent mobility in the lifestyle of most young blind children means that practice situations must be more carefully designed and monitored by the instructor than would be true for adults.

Aid training of blind children from 1 to 10 years of age by a number of investigators (including Strelow) has shown levels of skill varying from simple device use, in the younger age groups, to independent travel in semi-protected environments for the older children, with the aid alone or in conjunction with cane use (principally in work by Strelow). However, many of the school-age children face substantial difficulty in training.

We think that the problem may lie not so much with the devices as with our understanding of the perceptual and cognitive skills required for their use. These issues encompass fundamental problems of development which must be reconsidered in light of the availability of this form of technology. The practical application of this technology provides a focus for basic research questions which must be understood before general adoption of this technology with children is likely.

These studies must deal both with the general perceptual skills of blind children as well as with those of immediate relevance to aid use such as, for example, head turning which is an important aspect of the use of a head-worn sensor. The acquisition of device skills, I feel needs to be put into a framework of perceptual learning skills so that the level of achieved performance can be related to the amount of training. At the moment we have no clear idea of what the minimum and maximum time requirements for various forms of skill are.

Infants

Of course the problems of the blind child do not start at school age, rather they start in early infancy as this conference attests. A surprising number of people have at least attempted studies of the use of these sensors, possibly 20 infants have been studied to date. Only three of these projects, that I am aware of, have formally published their procedures and results in sufficient detail so that they can be effectively analyzed. In my own studies which seem representative, I was able to deal with three children who could be considered infants, two of whom were more properly diagnosed as multi-handicapped. Each child was able to give a response to the sensor after some training. In the best case this took only one session, but a 10-month old required nearly 3 months of activities, and a 2½ year old, retarded child required the use of conditioning procedures to elicit reaching.

The problems of studying blind infants are immense. There are not large numbers of such children born within an experimentally convenient time period. The visual disability is often difficult to assess in the first months of life so that several of the children who have received aid training have subsequently turned out to be more partly-sighted than blind. More fundamentally, it is not very clear what we should be doing with these children. The typical forms of experimental work, involving 20 to 60 minutes of interaction per session, one or two times a week; or longer periods of wearing, supervised only by parents, does not seem guaranteed to produce the radical change in perception that artificial sensors seem to promise.

We have recently begun to attack the problem with another procedure, the use of infant primates, reared without sight. Specifically the animal is a large monkey, the Stumptailed macaque. It has been a well established strategy to work with subhuman species when an experiment with humans would be either difficult or dangerous. In an animal study it is possible to get much greater control over the rearing conditions than would be the case with human infants; in particular it is possible to use the sensors for periods up to, and including 24 hours a day, if this is wanted.

Many of the people here are probably familiar with some of the important primate research which has had an impact on our understanding of problems of the handicapped. In the late 1940's Riesen first studied the impact of dark rearing on chimpanzees and found that after one to two months, such animals were functionally blind when returned to sighted conditions. This was partly attributable to peripheral damage or the retina, although later studies showed that in rearing conditions in which retinal damage was not present, that behavioral blindness was present. The well-known Harlow studies with the Rhesus Macaque illustrated the importance of the stimulation provided by the mother animals to the infant's well being. In one of the most recent studies from Riesen's laboratory, it has been found that rearing with restricted opportunities for motor activity, i.e., without other animals, toys and other objects present, that the animals become withdrawn and show abnormal neural development in the motor regions of the cortex. This I feel is of considerable importance to those who work with blind children for it suggests that the normal achievement of perceptual milestones and encouragement to active play is not just desirable as a behavioral goal, but is necessary for basic brain development.

To the present time we have performed a pilot study with one animal reared from birth for 34 days with a hood over his eyes, and a sensor on his head. The animal began to develop perceptual-motor skills which gradually took on the appearance of sighted activities, the head began to be carried erect, posture was more vertical and the hand appeared in the field of view. Testing the animal in controlled settings showed a reliable response to the presentation of objects much as was obtained with infants.

The pilot study also showed a number of practical problems which I hope can be overcome to allow us to perform more extended studies comparing training conditions and device characteristics. But the most important point, I feel, is that the animal studies may provide a basic model to assess both the benefits and risks of the use of sensory aids in the period of early infancy.

PRESCHOOL GUIDANCE AND INTEGRATED EDUCATION IN AN ISOLATED ISLAND SETTING

Roly Sint Jago
(Aruba. Neth. Antilles)

I suppose that the fact, that I come from a Caribbean island in the sun, will arouse images in your imagination, of white beaches, with beautiful brown girls, coconut palm trees, bent under the constant pressure of the trade wind, and banana plantations. Although I do not want to take away all your illusions -- after all, you may all be a potential source of Yankee dollars from tourism -- I must dissapoint you about the bananas, because the only ones that do grow on our island, are those, being cultivated carefully by the lonely lover of gardening, who has to water them every day. On the other hand, we do have lots of cacti, some of them towering up forty to fifty feet into the blue sky. And the snow-white beaches are also there, complete with the long row of luxurious and less luxurious hotels, but most of the girls you will find at the beaches are not brown, but almost as white as the beaches, until after an hour or so, when they have turned all red, because most of them come, planeloads full of them, freshly flown in from the United States, as tourists.

However, it is not the tourist we are interested in today, but the Aruban population itself, about 57 thousand of them, according to the latest census, which took place a few months ago. The island of Aruba is one of six islands, forming together the Netherlands' Antilles; three of them, the so-called ABC-islands -- Aruba, Bonaire and Curacao, -- are situated off the coast of Venezuela and the other three, the so-called Windward Islands, south of Puerto Rico are: Saint Martin, Saba and Saint Eustacius. The total landmass of the Netherlands' Antilles is 993 square kilometres, with a population of just under a quarter of a million. Population growth is very low, about one to two percent per year, partly as a consequence of emigration to the Netherlands.

In 1977, the per capita income was estimated at about $2,700.00 per year, which is among the highest in developing countries and is relatively evenly distributed. Comparatively high levels of income have been sustained by petroleum refineries, generous levels of Dutch aid and tourism. The economy's comparative advantage is based on the island's favourable situation along international shipping routes and on tourism attraction. However, the narrow natural resource basis of a small population, has seriously restricted the scope of developing a domestic market and of economic diversification. The economy is extremely open, even by Caribbean standards and very vulnerable to international economic development.

The island of Aruba itself lies about 12 degrees north of the equator, 18 miles off the coast of Venezuela. It is 19.6 miles long, from tip to tip, 6 miles wide at its widest point and approximately 70 square miles in area. When Aruba was discovered in 1499 by Alonso de Ojeda, together with the other two of the ABC islands, the Spaniards gave the islands the title of "islas inutiles", which means: the "useless islands", but they became useful enough, later on, for fierce battles being fought about them, so that they were alternatively under the flag of Spain, Great Britain and the Netherlands.

Aruba is now an autonomous island territory of the four island territories of the interdependent Netherlands Antilles which in turn are interdependent partners of the Kingdom of the Netherlands; a rather complicated system, you may observe, which will, however, probably end up into independence by the end of the decade, because the Netherlands want to get rid of us.

The official language is Dutch, though the vernacular of the ABC islands is Papiamento and that of the so-called Windward Islands is Caribbean English. The

Papiamento vocabulary is mainly derived from Spanish and Portuguese, with many additions from various other languages, such as Dutch and English, while its grammar seems to have African traits. The population is strongly mixed and a popular legend proudly proclaims that the Arubans originated out of forty to fifty different nationalities. Judging by all the different skin colours you see on our island, it may even be more.

I hope, my dry enumeration of facts and figures is not diminishing your image of the exotic and idyllic surroundings of my island of birth. To enliven the image a little again, let me tell you that we have a generally agreeable tropical climate, with a mean annual temperature of 28 degrees Centigrade, a usually fairly high and refreshing north east trade wind, with an average rainfall of about 18 inches a year, pouring down in tremendous showers from October through January. There is virtually no fresh water in the soil, so that we rely entirely on desalted or desalinated sea water for our daily needs. Even the local beer is made with desalted sea water.

Our healthy climate seems to have a healthy influence on the general health of our population because life expectancy is high in Aruba, - 70 years for men, and 75 years for women. Of course, public health care also contributes to it, although the costs are rising so dramatically that if this trend goes on, it won't be long, before we can no longer pay for it. All those who are not insured for medical aid and have no means themselves to pay for it, receive treatment payed for by the government. The cost of this form of medical aid amounted to 1,216,549 francs -- in 1970, an amount that has risen to 7,118,136 francs -- by 1979. It is interesting to compare these costs with the amounts spent by the government on medical cost restitution to civil servants and school-teachers, who receive a 90 percent restitution. In 1975, this cost the government 858,105 francs -- and in 1979 2,690,126m francs --, which not only proves an astronomical rise, but also a high incidence of low-income and uninsured people.

Although the official definition of "health care" of the World Health Organisation is underwritten by the local authorities, almost all institutions of health care were founded and are still being founded out of private initiative. However, most of these private institutions now depend either wholly or partly on public government funding, such as the local hospital - which is well-equipped and well-staffed --, the White-Yellow Cross Association -- a district nursing and child health care organisation -- the day-care centre and school for the mentally retarded and so on.

It was the foundation I represent here -- that is: the Aruban Foundation of the Visually Handicapped -- which introduced a new form of government involvement in private organisations, namely by getting the authorities to employ our workers as civil servants and assign them to us, a procedure that is now being copied by other institutions as well. The great advantage of it is, that the workers have all the rights of a civil servant and we have no administrative head-aches.

To complete the picture, let me mention the Aruban Foundation for the Hearing Impaired, the Aruban Foundation for the physically Handicapped and the Aruban Diabetic Foundation. I am rather proud to say that our foundation of the visually handicapped stands out very distinctly among the others, same for its aggressive approach and the distinct philosophy that supports its work.

The setting would remain incomplete if I didn't tell you that all primary education is free of charge and most of the cost of secondary education, irrespective of the question whether the schools be public or private. Both public and private school curriculums are regulated and supervised by the department of education.

So much for the setting where I come from and where our Foundation for the Visually Handicapped, generally known as the FAVI, is trying to do its work as best it can. It will be clear to you by now, that ours is a rather isolated, small-scale community which has the great disadvantage that all the problems of the world occur in it on a very small scale, which entails, that they all have to be tackled without the extensive expert assistance, that the big world outside has at its disposal. On the other hand, however, our small scale community offers us a unique opportunity, compelled by necessity, to try and do things differently. For instance we have visually and multiply handicapped children who, in any larger community, would, beyond any doubt be referred to a residential school, be institutionalized, probably for the rest of their lives. We put that sort of a decision off as far as possible, because institutionalization means sending the child away across the ocean, to the Netherlands. Formerly, this always happened and most of these children never came back. There is one dramatic case we know of, in which the parents of two multiply handicapped sons hardly even know now, after twenty odd years, where their children are.

Only eight years ago, no service of any kind on behalf of the blind and visually impaired existed in our island. It was in December of 1972, that a few people decided that something had to be done about that. They had no idea what to do, nor for how many people. They thought it might perhaps be ten or twelve. Nobody ever saw a blind person, because Arubans are a proud people; they would rather starve than beg.

To everybody's big surprise, by the beginning of 1974, a Roman Catholic nun, head of the White-Yellow Cross Association, had gathered over a hundred addresses of visually handicapped people and in February of that same year, the Aruban Foundation for the Blind was officially founded. From that moment on, things went rapidly on the move. What had started as a purely charitable affair had changed, by the beginning of 1975, into a rehabilitation service. The foundation's name was changed into a Papiamento one namely: "Fundashon Arubano di esnan Visualmente Incapacita", abbreviated to FAVI, which means: Aruban Foundation of the Visually Handicapped. At that same time, the board of the FAVI underwent a drastic change with four of its members being blind themselves, including the president and secretary.

A rehabilitation program for adult blind and visually impaired persons started on January 9, 1975 and a home-teaching program with the aid of volunteers, trained by the blind board members themselves went off the ground.

The need for social work and counselling was strongly felt and the island government was approached with the request to put a civil servant social worker at the foundation's disposal. The board had to resort to a rather aggressive approach to get the matter fixed, but in February of 1976 our first social worker started at the job and she is still with us todate..

More than a year before that, a pre-school program had been started with the aid of a group of volunteer school-teachers, with a lot of enthusiasm and involvement but with little or no expertise, except for what the FAVI managed to get them in reading-matter. The idea still was, to prepare the children, so that they would have better chances when being sent to residential schools in the Netherlands. In spite of their lack of expert knowledge, these ladies did a marvellous job, dedicating almost all of their leisure time, completely unpaid, to their task which, as a matter of fact, was also the case with the volunteer home-teachers and still is the case with over a hundred volunteers doing all sorts of different chores for us, from handicraft instruction to transportation, to fund-raising.

In the course of 1975, the FAVI board had applied for technical aid from the Netherlands and in the course of 1976, two rehabilitation experts came to Aruba, paid for by the Dutch government, to give an intensive crash course to the FAVI volunteers. By the end of 1975, one of the board members had made a study tour of the institutions for the visually handicapped in the Netherlands, paid for by the island government, and in the beginning of 1977, the FAVI social worker made an even more extensive tour to the Netherlands, also paid for by the island government.

In June of 1976, the FAVI started a bi-monthly newsletter because it was continually confronted with a tremendous lack of information, both on the part of the visually handicapped and on the part of the volunteers and the Aruban community in general. It is published in Papiamento and Dutch. Our annual reports, which are not really annual reports, but philosophical background information, strung around the facts and events, are published in Papiamento, Dutch and English, all three texts written by one and the same person, the FAVI secretary.

The same lack of information, prompted the FAVI board to launch a talking magazine program for which, again, we got technical assistance from the Netherlands, with an all-round expert coming to assist us in the final launching stage. The first edition of the talking magazine was sent to about sixty subscribers in September of 1977. In June of 1978, a separate foundation was founded to dedicate itself exclusively to talking magazines and books.

In May of 1978, another turning-point was reached, with the attendance of one of the FAVI board members of a conference on visually impaired children in Minneapolis, Minnesota in the United States. Before the year had come to an end, it was decided to launch a program of integrated education. In August of that same year, I joined the FAVI board. Through personal relations, we found an Aruban school-teacher, who was in the Netherlands at the time, prepared to undertake the job of itinerant teacher and we convinced the local authorities that they had to employ her for us and pay for her crash training, part of which she received in the Netherlands with one side trip, on our insistence, to Denmark. She started her job in July of 1979.

In the beginning of 1980, I myself made a study tour to the Netherlands and Denmark again during the Helen Keller Centennial Congress in Boston in June 1980, two other board members of the FAVI got in touch with Mrs. Sherry Raynor, president and organizer of this symposium and supervisor of the pre-school program of the Perkins School for the Blind in Watertown, Massachusetts in the United States. It took them little time to convince her to come to Aruba for a fortnight, to give us her expert advice on the spot and she arrived there, together with Queen Beatrix of the Netherlands, on the 31st of October, so that, unfortunately, the local press didn't pay much attention to her until she left again.

At this moment, we are employing a new worker, who is going to be a combination of an adult rehabilitation worker and an infant home-teacher. The local government is again employing her for us. Such combinations may seem incredible to you, but because of our small-scale community we have to try and make a sort of centipedes out of ourselves and our workers and by now, we are beginning to come to the conviction that this is not at all a bad development. We are very ambitious in our work. We try to dedicate just as much attention to the just born baby as to the one hundred year old elderly person, who lost his or her sight and who, in our view has just as much a right to our services as the just born baby.

All our services are delivered completely free of charge and none of the board members receive any pay for their work except for one now, who has dedicated over 28 hours a week to the organizational, administrational and coordinating affairs of the foundation, for which she only receives the equivalent of about $113.00 a week, including all expenses.

Of course, there are other things being done, such as emergency aid, financial or in kind, to needy visually handicapped people, but outside the board, nobody knows anything about that. We also do a lot of advocacy and propaganda towards the community as a whole and we have been involved in social campaigns, almost from the beginning and are strongly trying to force the Antillian government to introduce certain social security systems, which are very badly needed.

Actually, as you may conclude from my historical survey, the need for pre-school assistance was felt within the original organization, almost from the very beginning. What they lacked, was expertise in the field. Nevertheless, the basic approach of the original volunteer group was correct. They brought six children together to activate them once a week; and once a month, they brought the parents together to motivate them and give them the information, they themselves had gathered. However, it was quickly concluded that four of the six children were very mentally retarded also. These children were born as a consequence of the first ever rubella epidemic that occurred in Aruba. In 1977 they were placed in a day-care centre for the mentally retarded. Although this institution is being run by the Aruban Foundation for the Mentally Retarted, subsidized by the local government, the FAVI itinerant teacher, together with a volunteer worker and our social worker, are intensely involved in the teaching process of these, and two more visually impaired and mentally retarded children. Close cooperation between our workers and the workers of the Foundation for the Mentally Retarded grew out its own accord.

Intensive infant home teaching became a necessity in the beginning of 1978, when a new-born blind baby was discovered, a case of retrolental fibroplasia, and for a visually impaired child that was reaching school age. For lack of specialized workers, and with the aid of the information brought back from Minneapolis and other reading matter, the FAVI decided to risk the approach with the aid of the then part-time adult rehabilitation worker, who had been a volunteer worker for several years. Though she did her very best, one of the consequences of that approach was, that we had to decide by the end of the year that this work should be more professionalized. Especially the approach of the parents was psychologically too problematic for a worker who had had no training in the field. Curiously enough, the fathers' willingness to cooperate was and still is greater than the mothers'.

A secondary problem was that we had no place of our own to work from. Our social worker, up to now, has been sharing a little office with a colleague of the government's social service department in their building. Our rehabilitation worker has been working from her own home same as our itinerant teacher; and all administration and organizational work, same as aids and appliances supply have been going on from the private homes of board members, while our group rehabilitation program goes on in a public club building with full cooperation of the club and free of charge. However we have good hopes that we shall be able to enter our own little office building by the end of August next.

Our problems are manifold, mainly based on the small-scale system in which we live and which compel us to do jobs with single workers, without the extensive back-up teams of physio-therapists, psychologists, occupational therapists and so on. For that kind of assistance we have to resort to local professionals, who are already extremely occupied because they too, mostly, are single practitioners.

One of the greatest risks we run constantly, is that a worker drops out all of a sudden, for whatever reason it may be. There is no sense in placing a want-ad in such a case, to get a new skilled worker. There are none. Any worker we do get, has to be trained by ourselves and by sending him or her abroad for further training, which is a very costly affair.. Any new worker is a fully inexperienced worker but... there was a learned man who has formulated, or rather postulated, the law of "decellerating progress". We shall never fall victim to that law, because time and again, we have to start anew and every new start brings innovations, that were never tried before.

You, even though some of you also come from developing countries, perhaps far less developed than my island in the sun, you can all work on a far larger scale and therefore subdivide the population you are working for and specialize your workers for every subdivision. On the one hand, that is a great advantage; on the other hand however, we have the great advantage, that we can never lose sight of the total situation or narrow our scope of vision to our own, local situation only, because, international orientation is an absolute necessity for us in order to sustain our work with the expertise available elsewhere.

Perhaps, a situation like ours, may teach you a lesson too: the lesson, in the first place, that your own solutions, do not necessarily have to work elsewhere too, it may even contain a great disadvantage, that is, that certain modern developments in highly developed, large-scale communities may hamper developments in other parts of the world. We need your help very badly, but perhaps you will have understood by now, that we need it in our way. Mrs. Sherry Raynor understood that very well when she came to Aruba.

However, in a way, I have a slight illusion, that I have also been able to teach you a lesson, the lesson, that things can be done with very few means and at low cost. I don't mean to say that we think we have solved all the problems; on the contrary; we are in the midst of tackling them and hoping for the best.

THE SOCIAL & EMOTIONAL DEVELOPMENT OF YOUNG VISUALLY HANDICAPPED CHILDREN WITH ADDITIONAL HANDICAPS.

Gwendoline Howse
(England)

The birth of a baby, we all realise, is one of the greatest joys of life, yet few of us can fully appreciate the traumatic experience parents of a visually handicapped child must face at the birth of their child when in the majority of instances there was no reason for them to look forward to anything other than having a perfectly normal baby. Many of them, until actually having a visually handicapped child of their own will have had little or no contact with such children.

In the United Kingdom there are a variety of options available for parental help and practical support for the child from birth right through all his school life. The Royal National Institute for the Blind is the nucleus of numerous aspects of help and information offered as a national plan towards work involved with visually handicapped children, young people and adults. At present they have four Sunshine House Nursery Schools in different parts of England, where a very specialised service is offered to young children up to the age of approximately eight years. Many of the children who are at present helped at these four schools are severely handicapped in addition to their blindness by a variety of handicaps of an emotional, mental, or physical nature. Each of the four Sunshine House Nursery Schools has its own function which is determined by a variety of factors. In all of them the complete running of the establishment is organised by the Head Teacher who is in charge, working under the direction of the Education Department of the Royal National Institute for the Blind. Sunshine House, Leamington Spa has, since 1977, been a weekly boarding school and caters for up to 15 children, either as weekly residents, or day pupils. We offer very specialised help to the children and their families as there is a specific reason for each and every child being there, and in all our work we aim to cater for all their needs. The context of this paper is, therefore, given in relation to a small group of multiply handicapped children under the age of 8 years.

I, personally, consider the contact with the child's home to be of paramount importance with all that we are attempting to do towards the full education of the child. We must have constructive co-operation from parents and other members of the child's family. The Royal National Institute for the Blind has, for a number of years now, had a group of Education Advisors who visit children in their own homes and are, therefore, usually the first people who can offer constructive professional help and advice to the family - Miss Eustis, one of these Advisors, is here at the Conference so I will not elaborate on her work. I greatly value the co-operation we have from these Advisors and certainly count them as part of my team. They can, obviously, give us valuable background information about the children and their homes from a very early age. To continue this excellent work I encourage my staff to take the children home on a Friday, once a term whenever possible, talk with the parents and stay for a meal, before returning to school. A visually handicapped child's reactions to his lack of, or poor, vision are usually evolved from the reaction of his family to his handicaps - how easy it is for us to be critical of parents whose natural instinct it is to over-protect their child, yet surely this is one of the areas where parents first need expert help and understanding to appreciate the difficulties they are establishing for themselves. Effort is as important as achievement and is the valid criteria of ability - it can also be smothered by over-protection. We find, especially with the very young multiply handicapped blind child that it is quite impossible for them to be aspiring to reach their potential in a classroom situation, and to continue this the same day into their self-help skills. For young children who have severe mental limitations, it is essential that we, as educators, realise that any learning process takes considerably longer and needs constant repetition. Concept formation needs real experiences and this is where, in my opinion, it calls for the full co-operation of all staff to programme the child's learning according to his greatest needs or weakness. I simply cannot over-emphasize the need for team-work amongst staff in our efforts to help the children and their families. The need to have:

an understanding Paediatrician who will sit and in very simple terms explain to the parents the difficulties their child is likely to face.
the Psychologist who may be able to discuss why the child is expressing himself in a somewhat anti-social way.
the Physiotherapist who will give practical help towards overcoming the child's difficulties.
the Ophthalmologist who will explain the importance of encouraging the child to use even the minimal amount of vision the child has.
the Child-Care person who notices that the child's vision is variable according to situations or circumstances.
the Secretary whose use of the typewriter gives an excellent aid to mobility.
the Cook who readily welcomes the children into the kitchen and takes a genuine interest in them by demonstrating how the mixer makes such a noise and why.
the Cleaner who takes a lively interest in all of the children and enthusiastically enters into their pleasures and excitements.
the Gardener who allows the children into his greenhouse so that he can give a practical demonstration about plants needing protection until they are strong enough to weather the elements outside.

All of these people play an essential role as a member of a team towards the collective help we offer the children.

The children we are thinking of have a very limited concentration and memory span, thus it is essential that they have a variety of purposeful activities which are of short duration, and so generally build up a structured programme. In order for reality-orientated ideas to be successfully formed within the child's mind it will be essential for us to depend on the use of all the senses in cognitive activity. Obviously it is up to us to make provision for the child to get meaningful perception by the use of his other senses, e.g., the tactile information he receives will assist with creating ideas of size, consistency, shape and weight. The children will need to take full advantage throughout their lives of their other senses in order to build up knowledge in practical terms of the world in which they live, e.g., preparing rhubarb for lunch - this has so much educational value when one stops to think -

initially knowing when the rhubarb is ready for harvesting,
cutting off the leaves,
washing and cutting the sticks for cooking,
adding sugar and water,
waiting for the appropriate boiling noise,
then letting it cool before actually eating it.

This all seems so simple and to a sighted child the whole process will quickly be assessed as he watches his mother complete the task, but for a visually handicapped child each stage is a new development and even the language associated with it will widen his vocabulary. It is during the early years that the greatest part of a child's learning is achieved, so for a visually handicapped child we must be aware of the severe limitations this imposes. As adults, we frequently take so many visual things for granted simply because we live in a sighted world. It is only when working with these young children that the complexity of the events reveal themselves, door knobs are a good example, how many varieties can you think of operated by turning, lifting, pulling, twisting, squeezing, to say nothing of the variety of heights where these can be found on different doors. For a young child to experience these without sight, and possibly some additional physical or mental limitation, is quite an ordeal. I find it essential for the Child-Care staff who are working with the children either in a classroom situation or during out of school hours, to be fully documented about each child before the youngster actually comes to stay at school. I have mentioned the Education Advisors already but their reports of home visits are excellent because knowledge of past history assists us in possibly knowing if the present environment is the true cause of any inappropriate behaviour, e.g., a child who has always lived in a bungalow will show caution when expected to go up the stairs to bed on his first night at school. The Royal National Institute for the Blind has, over the past few years, developed a Child-Care staff training scheme. As part of this, I do quite a lot or work with them under blindfold, especially with regard to introducing new pieces of equipment before it is presented to the children, or for mobility training initially round the school and then the grounds, and later into the town of Leamington Spa itself.

In attempting to help the parents and other people working with the chidren, we do quite a lot of filming, for our own purposes, as we find this extremely valuable. Everyday living is an enormous challenge for the children, their knowledge of the sighted world cannot but be incomplete. When we stop to think of relatively simple things in the world such as stairs and the differentiation we make by immediately being able to visually assess them and thus know whether they are narrow, wide, deep, shallow, spiral or straight, to say nothing of the fact that they are made of wood, metal, stone, concrete, marble carpeted or edged with rubber, all of this information must be assessed in a tactile or auditory way by a totally blind child, and as such can prove very bewildering. Our termly Parents' Days have proved very revealing, as we usually take a self-help skill or classroom situation and discuss it fully with the aid of films and photographs, and even parents, themselves, working blindfold, on a specially planned programme, e.g., pouring liquids, spreading butter, etc. If we have, ourselves, experienced some of the difficulties the children face, then surely we are going to be more sympathetic to their needs. Enjoyment of life is one of our first principles because through this will emerge the ingredient for success. We recently took a film of one of our very multiply handicapped blind children cracking eggs. It was not until we actually all watched it later that we realised the full value of such an activity, both for the tactile experience and the spontaneous language it provoked. Our work is child-orientated but with the necessary resources available, whether this is expertise, equipment or buildings. Experience has taught us that it is the child's developmental approach that is needed as opposed to heeding the chronological age.

Body awareness is essential for a visually handicapped child to appreciate because from this he will be able to learn the basic social skills of dressing, undressing, toileting, bathing and mobility. We try to give the essential groundings with practical knowledge and skills for something which is going to be of paramount importance for the whole of the child's life, and thus it is essential that the groundings should be good. A child who is totally blind can gain a tremendous amount of knowledge through the soles of his feet, and therefore, at times, we feel it is appropriate for the child to walk bare-footed both inside and outside in the grounds. Some children learn to conceal certain fears behind a facade of chatter, especially when they are in unfamiliar situations. This distracts from the main task of the moment and can become a serious hindrance for the child because information such as identifying helpful sound clues in the immediate environment may easily be lost. Have you ever tried to orientate yourself in a large busy area, with your eyes closed - if so, then you will know how confusing the majority of the sound information is, and also the powers of concentration, let alone the confidence, needed to do anything constructive about propelling oneself through space. The age of onset of blindness and the eye defect plays a part in the confidence and competence a child has with all his social skills. We have, through experience, quite definitely found that a child who is blind and physically handicapped must be allowed time to re-learn the world around him once he is actually able to be in the upright position, simply because the information he receives through his other senses will be totally different to him.

With dressing and undressing, we feel it to be important for the child to be encouraged to select his or her own clothes each evening ready for the next day, as this provides an ideal way for them to experience textured discrimination and colour matching, which is an essential part of the visual world in which we all live. Think of the numerous fastenings we all take for granted - buttons, laces hooks and eyes, zips, ribbons, velcro; although extremely time consuming, it is far more effective for the child to learn these by fastening them on a garment he is wearing. Bathing, brushing hair, cleaning teeth and toileting all involve social skills which we learn as part of growing up; aided by vision each task is so much easier to accomplish. Feeding is an area where problems are often encountered. We feel it is essential to give the child an opportunity to experience as wide and varied a selection of foods as possible. Textures, taste and smell all play a vital part in feeding for a visually handicapped child, as does colour for a child with even a minimal amount of vision. We dearly hope that a blind child's favourite meal will not be sandwiches, but on the other hand, I do think it is essential for certain meals or foods to be purely "finger-feeds" simply to ease the amount of effort that needs to be put into struggling with the sheer mechanics of the task.

It will be appreciated that our "School Day" is indeed busy. We have a variety of sessions which usually last for the majority of either the morning or the afternoon, these consist of such activities as Swimming, Shopping, Horse Riding, Cooking, Music, etc. I feel that real conceptual understanding grows from personal experiences, and therefore, if something is out of reach then it is out of knowledge for our children.

This Symposium represents an international effort to improve the quality of life for young blind children in the world. The sheer fact of living is enormous for all of these children so let us share with them the joys and pleasures of the world.

ESTABLISHING AND MAINTAINING PARENTS OF VISUALLY IMPAIRED CHILDREN AS THE PRIMARY EDUCATORS THROUGHOUT THE RANGE OF EARLY CHILDHOOD DEVELOPMENT DEPARTMENT SERVICES AT R.V.I.B. SCHOOL

Margaret Bull
(Australia)

The Early Childhood Development Services at the Royal Victorian Institute for the Blind, Victoria, are based on premises that may well sound trite in today's atmosphere of demanding rights for all individuals and minority groups, but bear re-stating. They are: that every child regardless of impairment, has the right to every facility available to allow him to develop to full potential physically, socially, emotionally and cognitively. And: that parents have the right to full and unguarded information regarding their child's impairment and also to have access to facilities and skills which enable them to assist their child to reach full potential.

We assert that parents are the best care-givers and educators because of their unique investment in their child's development.

The Home Advisory Service provides a parallel counselling and educational service to families of visually impaired children regardless of other handicaps throughout Victoria. The Home Advisor must be adequately trained and experienced in both counselling and educational skills to fulfil such a flexible role based on the perceived needs of exceptional parents so succinctly stated by Pearl S. Buck, herself the mother of an impaired child, thus: 'How can I recover from the sorrow of having such a child?' and: 'What can I do for my child?' When confronted with any difficulty, each family member will react and adjust at different rates and with varying intensity. So it is with a family whose child is impaired.

Further, the adjustment may be cyclical, as each stage of development presents its own demands on family members' time, freedom, personal feelings of adequacy, etc., and they once more react at their own level of self awareness with their usual coping mechanisms. The impaired child cannot wait for a defined level of adjustment to his impairment by parents and others in the family for educational intervention to commence.

In our experience, babies often make progress as a result of new skills learned by the parents based on an understanding of the sometimes unique learning modes of a visually impaired child. This progress may act as a catalyst to parents' coping mechanisms and provide a relief from any feelings of guilt and depression which may be accentuated by feelings of inadequacy about caring for such a child's needs.

Through counselling, parents may reach an understanding of their own reactions. An acceptance of the naturalness of any feelings of distress, anger, grief and resentment which may be underlying but not expressed will lead to a more positive approach to understanding their child's learning needs.

The two areas of counselling and education are intertwined and must be offered as an interchangeable response based on the emphathic rapport of the Home Advisor to the needs of the family at any particular time.

R.V.I.B. offers a Home Based Service for several important reasons. Firstly, it is vital that the needs of all family members are considered, including siblings and the extended family who may well provide an important supporting role once their own sense of adequacy is established. It is important to encourage family members to communicate their own feelings honestly, leading to solutions which will consider all members' needs, and minimize resentment, anger, misunderstandings and an inequable sharing of any additional load, which may in itself lead to further break down of family unity. Home Advisors can visit at flexible times to include all family members.

Secondly, access to service is important. Visual impairment in Victoria is a low incidence handicap and our clients are geographically scattered. Increasingly, due to a growing acceptance of our services amongst referring agencies we are receiving referrals for very young babies - 5 days being the youngest, and 3 - 6 months being common. This of course is most desirable and helpful to the Home Advisor in establishing early rapport. As it is often impractical for parents of new babies, perhaps already committed to many appointments for their baby's medical management, to attend a central organisation, a home based service is of more practical assistance.

Just as importantly, the familiarity of the home environment guarantees optimum performance of the baby as his educational needs and progress are assessed. This further enables the Home Advisor to tailor the program to each family's unique resources. The visual stimulation program presently being devised (at the moment only prepared for birth to 18 months) utilizes existing household equipment, cultural patterns and parenting skills and allows for personalised adaptations based on each family's circumstances. (The printed page leaves space for remarks to encourage parents' own ideas to be relayed back to the Home Advisor, now cast in the role of learner and sharer.)

The home based service encourages an awareness of the impact of the home environment on the child's use of residual vision and other learning modalities, and may lead to creativity and inventiveness on the part of the parents in providing sensory stimulation.

Lastly, parents visited at home may feel more comfortable on 'home ground' as many issues relating to their babies' development arouse deep emotion. The opportunity to momentarily 'opt out' is a coping technique which can assist a parent under stress.

It is important that options are offered, and some parents may choose to receive the counselling and educational service at R.V.I.B. School. In our experience this is very rare, but eventually there is an almost universally expressed need of the parents of a visually impaired child to meet other parents who have similar experiences to share. They also wish to see other visually impaired children at different stages of development while they gradually form a picture of life for themselves as their baby grows, and the focus of the difficulties alter from adjustment to delayed developmental milestones to the question of schooling - when and where, and the impact of their child's sexual maturity with its potential stresses.

Day time get togethers, evening meetings and parent weekend seminars offer a variety of opportunities for parents to draw from each other's skills and resources, develop in assertiveness and self actualization, and perhaps re-orient themselves whilst becoming involved in the wider issues of services for handicapped children. Shared experiences highlight the normality of much of the visually impaired child's behaviour and give a clearer understanding of when the visual impairment indicates special considerations. Parents must be supported in their role as decision-makers regarding their child's future.

Centrally based services have a geographic limitation of accessibility, but provide an additional dimension to our services as well as the opportunity to involve a wider team of skilled professionals including speech therapists, physiotherapists, occupational therapists, O & M instructors, social workers, psychologists, pre-school teachers and medicos. This inter-disciplinary team is available to Home Advisors as a resource group.

R.V.I.B.'s philosophy is directed to maintaining the child in his own home and community where this is the best placement, and on-site services reflect this philosophy.

Through workshops parents are encouraged to explore the dimensions of their own perhaps underdeveloped, unappreciated senses, other than visual, and to more fully appreciate their potential for learning and increased sensitivity through the use of these senses.

Pre-brailling and pre-mobility exercises are taught in every day experiences and routines. We cannot expect the parents to teach when they do not understand the learning implications of the exercise, so a teacher models child management techniques as well as observation skills and exercising objectivity in assessment of progress.

The toddlers' group consists of a teacher and assistant, 4 parents and their children working together, discovering the new sensory experiences and rejoicing in their own and each others' heightened awarenesses and responses. Parents may be more ready to work with a child other than their own, gaining confidence in skills without the subjective emotional pressures which may hamper interactions with their own child. Planned sensory experiences, orientation and mobility exercises and pre-brailling and inclusion in the child's activities, sometimes under blindfold, lead parents to a closer identification with the implication of learning with limited vision.

On-site pre-school provides the opportunity for local children to join a small group for shared kindergarten experience with visually impaired children who are not yet ready for local kindergarten with its increased tempo, and less adequate child staff ratio. This is an exercise in integration on-site, with the community joining in the use of our facilities.

Here two pre-school teachers and an assistant can enrich the experience of 5 visually impaired and 10 sighted children, whilst the visually impaired children benefit from language modelling and imaginative play - both frequently areas of delay. A smaller integrated group caters for 3 visually impaired and 3 sighted children at 3 year old level. There is opportunity for the important 1 - 1 teaching contact which the visually impaired child may need to re-inforce experiences.

Again, the parent is an integral part of the team, joining in sessions and also working individually with child and teacher. For a country parent where the child lives in, one week each term in residence helps to keep management techniques consistent between home and R.V.I.B.

One of the very basic rights of an impaired person that is often overlooked is their right to contribute, and not always be in a position of receiving help. Young children's fresh acceptance of the sameness rather than the difference of visually impaired children allows this giving role to develop. The integrated groups have proved successful and valuable to all children involved, with an acknowledged difficulty during outdoor activities when mobility of the sighted children becomes divisive at times.

Where the visually impaired child can cope with the local pre-school environment and continue to learn, both local teacher, parent, visually impaired child and other parents will benefit from visiting teacher support. Careful preparation for this educational experience can lead to success and hopefully lead on to regular school attendance.

1. Here the importance of early bonding makes a strong impact. The opportunities for such bonding are not enhanced in the Australian culture by prevailing methods of child birth and post natal care encountered in most hospitals where the vast majority of births occur. In spite of growing awareness, for most impaired children there is still a decreased opportunity for the early establishment of committment between this one child and this one adult. As we know, bonding is further interrupted by the lack of eye contact, an important reinforcement of awareness.
2. Further, Australians are not a 'touching' society. Adult Australians do not normally touch on meeting either by handshake or embrace. Thus an inhibiting social more which will limit tactile input must be sensitively modified in the interests of the visually impaired baby's need for tactile stimulation or desensitization.

Residential facilities:
Some children require residential placement for their most appropriate management. Nearly all such children are multiply impaired, giving credence to our

claim that support within the home can often maintain home placement, while recognising that multiple impairment causes added stress.

At a time when the community is accepting integration as a 'good thing' (sometimes provided it takes place in the "neighbouring school") and institution care is in disfavour, it is important that the parents of children so placed are supported in their decision.

Much consideration must be given to knowing and continuing accepted family practices of child care, initially unless of course they actively threaten the child's well being.

R.V.I.B. staff have found that where early bonding has not been established, perhaps leading to parental indifference to or rejection of the child, we may successfully establish bonding between child and staff member initially, and with every awareness and concern for the implication to the parent. As long as the child can establish relationships it is possible to extend the bonding back to the parents at a stage in their readiness to accept, if continuous contact has been encouraged between child and parent, through active involvement in the educational program, and continued counselling.

The parent is always presented with the potential uniqueness of his/her relationship with the child.

Delight in small steps towards progress are shared, particularly if they take place in the time that the child is with the parents, and the significance of such small steps is discussed.

The staff member never indicates a feeling of emotional attachment to the child which might threaten tenuous bonds between child and parent.

3. Familiar child management procedures and routine, should be replicated, e.g., diet and feeding procedure taught by the parents to staff, to ensure acceptance by child and parent of such a placement. There is no room for any other than an individual program for every child. Stable careers and a primary contact person for the parents will assist rehabilitation.

Teaching staff work shifts at times to model the learning situations in everyday routines and to know each child as he presents at different times of day, such as bathtime and bedtime.

We may not choose parents' child rearing methods ourselves, but we must share our thoughts on alternative methods only within the framework of parental comfort, and continue to involve parents in program planning and implementation, being ready to facilitate the child's re-entry into the home sensitively and over a long period of time with the support that each individual situation dictates.

In the four years that the existing range of services has been implemented we have seen:

- a decrease in the number of visually impaired young children without other handicap institutionalised
- an increase in the level of ability displayed through adaptive behaviour and feelings of self worth leading to more visually impaired children, including totally blind children, being successfully supported in their local schools from the beginning of their primary education
- a marked improvement in use of vision in many children, leading to improved performance and increased acceptance by family and community
- a successful return to home of numerous children who have been institutionalised for several years. It may be that placement should alternate between home and school at various stages in the development. Flexibility of services can be presented so that placement residentially is not seen as failure to integrate

- a demonstration of increased coping techniques by parents, leading them to a formal and informal exchange of information and ideas for mutual support
- an ability on the parent's behalf to question services, state needs, and assist in the realisation of those needs
- a team of professionals and parents giving and gaining support to the enrichment of their shared experiences with the young visually impaired child.

THE DEVELOPMENT OF A PILOT PROGRAM OF PRESCHOOL SERVICES FOR THE VISUALLY HANDICAPPED IN INDONESIA

Lawrence F. Campbell
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There can be little question regarding the need for services to preschool visually handicapped children. Those of you who attended the session earlier this week when Regional Reports were given, were, I am sure, struck by the dramatic absence of service to preschool visually handicapped children and their families in many countries.

This, of course, should not come as any surprise when the problem we are dealing with this week is placed in perspective with the global problem of blindness in the world today, and into the broader perspective of disability.

A 1968 survey conducted by Rehabilitation International produced an estimate of 450 million persons with significant disabilities in the world at that time. Just ten years later, that estimate was revised upward to 500 million.

The World Health Organization estimates that there are approximately 42 million blind and visually handicapped persons in the world today. still more alarming is the fact that this figure could double by the year 2000. However, even these grim figures are only part of the story. Blindness does not exist in isolation, but is part of a complexly interwoven myriad of social, health and economic problems that make simple solutions difficult to come by.

The majority of the world's population live in slums and rural areas of the least developed countries of the world with little or no access to any permanent form of health care.

- In some African countries, a new-born child has only a 50-50 chance of surviving through adolescence.
- Only one in three persons in developing countries have access to safe water and adequate sanitation.
- This year over 5 million children will die from diarrheal diseases in the Third World.
- 30 million people suffer from onchocerciasis, or river blindness.
- 250,000 infants and preschool children, in Asia alone, will lose their vision from a disease known as xerophthalmia...50% of this number will probably die before their 6th birthday.

With this grim backdrop, how do we as professionals concerned with the needs of visually handicapped persons address ourselves to this overwhelming problem.

First, we must begin by taking an objective look at some facts which transcend geographic boundaries, political ideology, and religious beliefs and take stock of the community of man in the last half of the 20th century.

In 1979, UNICEF and Rehabilitation International undertook a study of the situation of handicapped children. This study, tied into UN efforts for the International Year of the Child and the ongoing International Year of the Disabled Person, identified some important factors that we as professionals in the fields of special education must look at if we hope to have any significant impact on the lives of young visually handicapped children, 80% of whom live in the less developed countries of the world today.

1. Poverty and Disability

As yet we have not addressed ourselves to the dreadful interaction which exists between poverty and disability. Social and economic deprivation are fundamental causees of disability. This fact is perfectly evident when we understand that fully 80% of blindness in the world today is preventable.

The degree to which disability starts or accelerates the collapse of a family's already fragile economic base is only partly understood.

We are only now beginning to think of prevention and education and rehabilitative services as basic components of broader economic and social development programs.

2. Lack of Information

Although not exclusive to the lesser developed countries of the world, there is an almost total lack of accurate information about disability, its causes and consequences and what can be done about it. This lack of information frequently reinforces the traditionally distorted concepts of disability thus feeding prejudice, superstition and fear. This, in turn, does much to conceal the magnitude of the problem and to prevent or confuse thinking about solutions.

3. Role Development

In most developing countries, an individual's role within the community is much more rigidly defined than it is in the more technologically advanced and highly mobile cultures of the Western world. Whether through real or imagined limitations the individual is unable to fulfill that role, they are likely to become a non-person without value to self, family or community.

4. Program Models

Fully 90% of the very limited services that are provided to the visually handicapped, and for that matter all handicapped persons in the lesser developed countries, are based upon program models developed in the industrialized West.

This fact forces us to examine two basic questions.

1. Are these programs reaching the large numbers of visually handicapped persons in need of service? Can we ever reasonably expect that they will?
2. Are the concepts of special education and rehabilitation evolved in the industrialized West appropriate for countries where economic and cultural circumstances are so different?

Most of the existing services take place in center-based programs located in the capitol or in the larger cities of these countries.---- 80% of the population in most developing countries face severe economic constraints which prevent the provision of even the most basic of health and other human services to their citizens.

Add to this the fact that most existing program models fail to account for:

- the impact of removing the visually handicapped person from the strong, traditional extended family structure,
- the problems inherent to teaching skills in an artificial rather than the natural environment,
- the problems of transfer to learning from this artificial environment back into the natural environment,

and it is easy to see why traditional program models evolved in Western cultures frequently fail to do little more than to occupy the visually handicapped individual for a period of months or years only to see that person return to a life of social isolation and economic dependence.

Even if the problems of economics and learning environment could be overcome, such Western-based models would probably not be viable alternatives, because they do not actively involve the family and community in the "teaching/learning" process.

How frequently those of us who work in developing countries have seen examples of a visually handicapped child who has been equipped with skills and knowledge to allow him to become a contributing member of his family and community, only to see that same child return to a life of isolation and dependence.

There are very few positive role models upon which a community can examine and reassess its traditional attitudes toward the visually handicapped person. As a result, traditional attitudes of pity, helplessness and dependence are pervasive in most communities. Only the strongest and most persistent visually handicapped person is likely to overcome the barriers established by such attitudes.

However, if the community is involved from the outset in:
- identifying the need,
- developing the program, and
- carrying out the training,

we assure ouselves of a much greater chance of success because we are able to integrate the program into broader health and social welfare infrastructure at the village level.

Narrow categorical programs are too costly for most developing countries to even consider.

Traditionally, the field of education of the visually handicapped has led the way in the establishment of programs for other handicapped individuals. I see no reason why the provision of services to young visually handicapped chidren in the lesser developed countries of the world, cannot once again lead the way in providing services to all handicapped individuals.

Our recent experience in developing community-based programs of integrated education for the visually handicapped in Indonesia, has stimulated that Government to re-examine its priorities, and to move in the direction of a more community-based approach to serving other handicapped children.

However, if the programs we develop are to provide direction, and to lead the way, we bear an awesome responsibility and should keep a number of "lessons learned", clearly in front of us at all times.

1. Community Involvement

Communities have the best solutions to their own problems. It is not our job to impose our values and ideas on the community, but to help them recognize that they have within themselves the ability to evolve a program model that most effectively addresses the problem within that cultural context.

2. Government Priorities

Political involvement is essential if we are to extend services beyond the chosen few, and to reach larger numbers of visually handicapped children at the community level. This requires us to look beyond our narrow categorical area of interest to the broader development goals that have been established. We then must find ways of "buying-in" to those systems and integrating services, such as those for the preschool visually handicapped child into broader health or education programs.

3. Leadership

We must identify persons with power and influence at both the local community and government levels. Our chances of success will be directly proportionate to the extent to which we can interest and motivate these individuals in the problem with which we are concerned.

4. Replicability

If we are ever to interest persons of influence in the need to develop services for a narrow categorical area such as the infant and preschool visually handicapped population, it is critical that our ideas be:
- economically viable, and
- replicable with other populations.

5. Prevention

For far too long, we have separated programs of prevention from those that provide services to the visually handicapped. This has been a costly and tragic mistake. It should come as no surprise that when we find large numbers of blind infants and preschool children in need of services, we are dealing with a dynamic rather than a static problem. Unless we are able to integrate efforts of blindness prevention into the development of programs which serve the visually handicapped infant and his family, we are fighting a losing battle. World population growth figures are a testimonial to that fact.

Failure to address any or all of these issues in attempting to develop services for the preschool visually handicapped child in the less developed countries of the world, can only result in frustration and a perpetuation of the current status of services for a chosen few.

The task of initiating preschool services in Indonesia will undoubtedly be familiar to you who have had the responsibility in your country. It is only in degree of awareness, complexity of bureaucracies, and sophistication that nations differ. The task of developing services, on the other hand, may not be so familiar to many because every country varies in its priorities, depending on size, attitudes, motivation, administrative structure and financial ability.

It is quite understandable that attention to services for the preschool visually handicapped population in Indonesia had no priority until HKI encouraged a few government officials to focus on this area of need. At present, less than half of one percent (about 1000) visually handicapped school-aged children are receiving a formal education in residential and integrated schools. The Ministry of Education is concentrating its efforts on expanding both types of programs. The Ministry of Social Affairs, a cooperating member of the Project Implementation Unit, established by the Ministry of Education, was therefore approached and convinced of the feasibility of a pilot project in Parent Counseling. They were willing to try in one district, Bandung, provided that it would:

1. fit into the existing system of social services,
2. be on a small scale, and
3. be cost-effective, whatever that means when one is dealing with blind babies.

Unless a workable process of implementation could be established, services would not expand and technical assistance would be wasted.

Lack of funds and very few, if any, trained personnel in Parent Counseling are facts of life in any developing country. Add to these the accepted cultural attitudes of fatalism and pity. In Indonesia these constraints were balanced and almost overcome, except for financial support, by certain positive cultural motivations, peculiar to this unique country. The philosophy of Pancasila is the basis of all development programs. One principle, Social Justice for ALL, has resulted in greater awareness and momentum in implementing programs for all impaired children and adults. Secondly, the ancient Indonesian tradition of "Gotong-Royong", mutual assistance, is an integral part of Indonesian life. A third cultural asset, the Islamic principle of social welfare, "Lillahi Taala - for nothing else, only for Allah" is the basis of most volunteerism, which is well organized and practiced throughout the country. There is a network of private voluntary organizations reaching from the National level down to the villages. The combination of duty and intrinsic motivation of volunteers has played a vital role in the development of the first formal Parent Counseling program in Indonesia, and, I believe, in all Southeast Asia.

The project was started with a hope, a prayer, $5000 from the Lions Club and four social workers, completely lacking in knowledge of blindness and secured for two days per week when they could be spared from other duties. After four days of lectures and discussions, they were assigned to counsel 16 families of 0 - VI year olds, selected from data compiled by the Nutritional Blindness Prevention Project, conducted by Helen Keller International.

As you may imagine, it was not a simple straightforward task: first, to learn what the limitations were, then to work within them, and today, two years after conception, there is a program which, in its small way, continues to make an impact on families of visually handicapped children. In July, 1979, there was no professional, community or parental awareness and understanding of the young blind child. The families identified were the poorest of the poor. Most of them lived in remote rural areas, difficult to reach even by car and impossible by public transport. The parents were so poor that they could not afford what, to us would be a meager transport ($.15) to take their children to the nearest health center, and certainly not to the eye hospital in the city for follow-up after their participation in the prevention project. The parents had little or no knowledge of the needs of their children.

The logistics of communication, monitoring and availability of field-workers were difficult to coordinate and always uncertain. The promised jeep was not dependable - frequently being used by someone else or in need of repair. A riddle: how can four persons be transported by one car 20 - 30 kilometers in four different directions, do their job and be picked up when finished? Polite Indonesian solution: the males deferred to the female social worker and the nurse/nutritionist who was pregnant. They used public transport and sometimes walked five kilometers to a village in the interior.

I must admit, I had great misgivings about the feasibility of parent counseling in Indonesia. This original plan of operation and exploration continued for six months, enough to be convinced that the project, if it were to survive and grow, had to change its approach.

However, even with the constraints they encountered, the West Java regional Social Affairs officials recognized the value of parent counseling. They structured a plan of operation that would be community-based and involve controllable existing staff plus volunteers at the village level. A provincial official assumed responsibility for the project. Provincial social workers were assigned to monitor each existing district social worker, who, in turn would monitor and support the volunteers in the villages. The team set a reasonable target of 50 families, living within twenty-five kilometers of Bandung.

Finding children was no problem. Each administrative district had statistics on blind children. We requested the names and addresses of preschool children. When the lists were reviewed, we found an age range of two months to 55 years. This was another of the numerous humorous language lessons I have learned. Of course, they were all pre-schoolers. After a sympathetic chuckle, we decided to enroll twenty-four children, aged seven to twelve, in the project even though they were outside the normal definition of preschool. The need for parent counseling for them was just as urgent as for the under sevens. I trust you will understand my stretching the theme of this symposium a bit.

The four original social workers immediately launched an awareness program to effect the transition. They met with district, sub-district and village leaders, motivated them to recognize the need for parent counseling, and to recruit a volunteer from each village where a child lived. The only criteria for selection were interest and motivation. Almost all were accepted, ranging from unemployed high school graduates to housewives to working men and a few parents who wanted to be directly involved. The project depended on them. Would they be reliable? Would they carry out their duties regularly - especially if they needed to travel to the homes? It was decided to add a small sense of moral obligation to their motivation by giving them a small amount of "operational expenses" thus, we would not destroy the volunteer concept. They would receive Rp 2,500, - per month - $4. These plans could never have been considered, had not UNICEF, like manna from heaven, made a timely and welcome contribution at the end of the International Year of the Child to support the volunteers, monitoring, transport to hospital, medication, public education and training seminars.

All volunteers plus staff were given a crash (simple and practical) training in three days - all that the budget could afford. The curriculum covered: implications of blindness, interview techniques, parent problems, sense training, ADL, pre-cane skills, nutrition education, local health and education resources and two simple check lists which served as guides for evaluation and progress of the child and parent.

The volunteers set out on their task, motivated and encouraged, with a few toys and volunteer-made teaching aids, but not at all competent by professional standards.

They knew it, too. Most volunteers counsel one family, some two and one, three. They work with the parents at least one hour per week and attend a problem solving case conference in their district each month. Ideas, information, techniques and aids are shared, and arrangements made for medical and school referrals.

Implementing medical referrals was built into the project. Every parent and child was taken by the sub-district social worker to the eye hospital. The hospital director and staff had been briefed on the program and agreed that all services would be gratis. The nurse in charge of the children's ward was loaned to the project for two days per week. Her role is varied. She coordinates field visits, and assists the ophthalmologist and a group of volunteer doctors' wives who go regularly to a few villages. They examine, weigh and measure all children in an effort to educate parents on the importance of eye and general family health. They give cooking demonstrations and feed the children. The nurse/nutritionist gives her regular lectures and demonstrations in the villages and in the hospital for parents of all children who are confined. In addition, she visits the homes of the project children with the volunteers and talks to the parents.

It is incredible that, in this lush country where anything grows, including carotene rich foods such as carrots and papaya, malnutrition is the major cause of visual impairment among preschool children. Forty-seven percent of the 0 - VI group (13.7 million) in Indonesia suffer from some degree of Vitamin A deficiency. Sixty to eighty thousand children devlop corneal xerosis annually. One-half become blind and the other half, visually impaired. Fifty percent of the blind children die before the age of three from severe malnutrition or systemic diseases. Frightening statistics, and even more overwhelming, the planning and delivery of needed services.

Implementing the volunteer's referrals for educational services has not been so simple for lack of facilities. There would be no problem of acceptance of five and six year olds in normal kindergartens, but we found only two that were near enough to the child's home and convenient for the parents. One parent refused to have his child attend. Kindergarten programs are in the early stages of development. In all of Indonesia, there are only 48 government and 17,640 private kindergartens for 5 and 6 year olds, attended by 895,000 children. At present, Hendra is the only blind child integrated in a sighted kindergarten in Indonesia. He adjusted immediately and now, after only seven months of preparation, he is ready for integration in a primary school in July. His family is very pleased and willing to transport him.

Five of the twenty-four school-aged children in the project have recently been placed with foster families in a cottage system "Panti-Asuhan" run by the government. This model, integration in an established Panti near a primary school, is one solution to integrated education for children who are too remote from a school and whose parents prefer not to send them to a distant residential school.

The program is certainly not static. Children are moving out; new ones are waiting to move in; old volunteers will be replaced by new ones as we move on to new villages. The only serious problem at present is future funding, but that, too, will be solved somehow.

What has been achieved? And where will the pilot go from here? Despite all the limitations, the products; the families, the children and communities have thus far benefited enormously. We know that the communities and parents have become aware of their responsibility. Parents are more comfortable and more interested in their children. With understanding, attitudes have become positive and initiative has replaced lethargy.

An evaluation in the near future will reveal some measurable achievements in a program that has many intangibles. Seventeen children have received medical attention, most of them for the first time. Three have had their sight restored through surgery; two have had their vision improved with glasses. Nine children have been enrolled in primary schools and twenty will be entering residential schools next month. Nutrition education and demonstrations have reached more than 400 mothers.

Improved nutrition is apparent for most of the children. For the others, it is too late. What we cannot know, and perhaps never will, unless an impact evaluation is conducted after five years, is: How many future babies will not become visually handicapped because their mothers learned the importance of proper nutrition?

The cost of implementing the project for 55 children for one year, including operational expenses for staff, volunteers, monitoring and two training seminars was about $10,000, $180 per child or $15 per month. Provided that further funding becomes available, and 50 new families can be added in new sub-districts in the Bangung regency, using the same provincial staff, the cost per child would decrease to about $10.

Above all, the pilot has answered a key process question. Forty-nine volunteers started one year ago. Forty-seven are still with the program. Those who had referred children out of the project found new children who had been overlooked, so that they could continue to be involved. Their persistence and devotion have proven that the volunteer concept works in Indonesia.

The goal of any pilot project anywhere is to pinpoint a need, to build it into the existing society and system of services and to convince communities of the benefits. Replication will depend on affirmative conclusions of the evaluation and the ability of the government to expand.

When one considers the size of Indonesia, with about 250,000 birth to seven year old visually impaired children spread over an area larger than the United States on a thousand islands with more than 350 different ethnic groups, 250 regional languages and the slow development of new programs, one can appreciate the enormity of the problem. In West Java, only one of 27 provinces, one percent of the estimated 6000 birth to seven years-olds have been reached. It will take generations for services to catch up with the need, if ever. The Parent Counseling Pilot Project has not even touched the whole tip of the iceberg. It has only explored a few precious crystals "in the beginning", but a beginning has been made.

"WHAT IT'S LIKE TO BE THE PARENT OF A VISUALLY HANDICAPPED CHILD"

Mary Ann Adams
(U.S.A.)

On April 30, 1975, 10:30 P.M., a baby girl was born to Mary Ann and Bob Adams. The joy and happiness I felt was very short lived as I watched that precious gift of life being examined by a team of doctors and nurses. Finally after 24 hours of agony, we were told that Teresa Marie had been born with a small head and no soft spot. Her pediatrician told us to take her to a neuro-surgeon so that an operation could be performed to create a soft spot. When Teresa Marie was 7 days old and weighed 6 lbs 18 oz. she and her very weak mother went to the neuro-surgeon, and Teresa was admitted to the hospital. After 5 days of agony (with no information) spent chasing doctors and nurses for some word (we were told) that Teresa was brain damaged and no operation could help her. The neuro-surgeon recommended that I take her to a neurologist, but left that choice up to me and my husband. The last words of encouragement from the neuro-surgeon were "Just take her home and enjoy her for as long as you have her".

I was totally deflated and disillusioned, filled with "Why me's", bitterness, hurt and disbelief. I got my courage up and again went to the neurologist. After his week long round of tests and examinations he gave me his prognosis. He really did not know if Teresa would ever be able to sit up, crawl, walk, talk or help herself in any way. He told me to take each day and enjoy her for that day.

Back home again I took Teresa to her pediatrician for her checkup and baby shots. I suspected that Teresa could not see because she wasn't interested in her stuffed toys and play gym that were in her crib. I told the pediatrician about this and he sent me to an eye specialist who confirmed my fears. Again we went back into the hospital first to relieve the pressure that had built in Teresa's head and then to remove part of her irises. Since that operation 5 years ago, Teresa seems to be doing well. The pressure on the brain is gone and no secondary glaucoma has developed. Now we begin again, Teresa is 3 months old, with not only retardation, but blindness to deal with. Again I felt the unfairness, the guilt, the emotional upheaval and always the "why me's!!"Finally after dealing with all the self pity I began to think about what was going to become of this child, and made up my mind to start helping Teresa become as self sufficient as possible.

I started making phone calls for help when Teresa was 6 months old, looking for physical therapy and occupational therapy to help her muscles and hands, and learn to crawl. I spent hours and days but finally it paid off. I got a physical therapist and occupational therapist to come to my home twice a week. Teresa was 8 months old now and we worked together and got Teresa to sit up. What a thrill just to see her move, when she finnally pulled herself up and stood on her two feet... I was ecstatic. But now that I knew she could learn I had to push further. By now Teresa was almost 1½ years old.

I went back to the phone to see what was available in infant stimulation programs. Believe it or not, none were available in my district. More calling to the city and district officials all the way up to the Federal government. I finally heard of a preschool program outside my district. I was told Teresa could come into the program just until my district started its own infant stimulation program. But there was a catch. My city would not provide any transportation. I was so determined that Teresa receive help that I transported her myself every morning.

The paper work and medical records that were necessary for Teresa to be enrolled were overpowering. I sometimes thought that the school system made it so difficult for the parents that most would get discouraged and give the whole thing up.

Teresa was now about 2 years old and my school district finally opened a preschool program. Again this required another round of paper work, medical records, and interviews before she could go to school. Finally success. The taxi pulled up outside my home and Teresa got in and went off to school by herself and it was the first time I had 2½ hours to call my own. This program for Teresa only lasted until she was three years old. So at the end of the school year (June) I had to start over again: this time with the Board of Education and the Special Education Department in my own city. Teresa had to be evaluated again but thank the good Lord she had been in the preschool program. The evaluation went a little more smoothly this time but it wasn't easy. Again there were the mounds and mounds of paper work and medical records and fights with the Board of Education as to what I wanted for my child, and what they could provide. There were no programs in my district geared to the blind child at the preschool level so the Board of Education wanted to put Teresa into a regular nursery school with just normal 3 year olds. I fought that, thinking that the teachers in the program would not know how to handle Teresa's blindness and she would be left by the wayside.

The Board of Education finally gave in to my demands and allowed a teacher working with blind children to go into the nursery school twice a week. This seemed to help not only Teresa but all the professionals concerned with her program. I knew that Teresa could not stay in the nursery school program so I started looking around for another program geared to Teresa's biggest handicap, blindness. I wrote a letter to Perkins Institute for the Blind and asked if they had a preschool program and received a phone call telling me they did and what had to be done in order to get Teresa enrolled: Teresa at this time was 4 years old. Here we go again! Evaluations, medical records, mounds and mounds of paper work and interviews, and problems with the Board of Education because they didn't want to pay to have Teresa transported to Perkins. They wanted her kept within her district. After fights and legal threats they finally gave in and Teresa began at Perkins. So you see persistance pays off, a loud mouth, a few threats, loads of work and most of all not giving in or giving up on what I as a parent know my child needs goes a long way.

While fighting for Teresa's right to an appropriate education there was another area that I found totally lacking for parents of handicapped children, "respite care". In the Boston area there is almost nothing available. Let's face it, we all love our children but there are times when we all need a break. So I began my search again and after weeks of asking and another round of phone calls I was given 8 hours of respite a week. A woman would come to my home four (4) hours two days a week so I could get out and do errands or just visit a friend. I had a very bad experience with this type of respite care because the woman robbed my home and that of course turned me off to home care. I was then offered 2½ days of respite once a month at a state hospital. So I tried that. I brought Teresa in on a Monday morning and picked her up on a Wednesday afternoon but that didn't work either because the hospital was not geared for the blind child. Teresa was left confined to a bed or playpen and had no contact with others. When she came home, Teresa's behavior was so passive that it used to take me two or three weeks to get her back to doing what she could do before leaving and by then it would be time for her to go back for respite care! I finally gave up on the hospital, because "respite care" was causing more problems than it solved. If Bob and I wanted to go out, which was not too often, either Joseph (my son) or one of my relatives or friends would baby sit.

The area of quality respite care needs lots of work. What parents wouldn't like a vacation. I know we sure would, but I cannot at this time find someone or someplace for Teresa to go where I could go off and feel she was well taken care of.

Then there are the simple things that are taken for granted with so-called normal children that are so hard to find and get for special children. Why? They are human; they have two hands and feet, eat and sleep like every one else, but they are not treated like every one else; they're different. Did you ever try to take a blind child for a hair cut? I have and I'd hate to tell you how many people, once they hear Teresa is blind, are afraid to touch her. Did you ever try to get a dentist to see your child? I must have spent hours calling and getting refusals because the dentist did not take "special cases."

Let me tell you someting about my family. Teresa was six on April 30th, 1981. Throughout her life my husband Bob was there when I needed him. My son Joseph, 17 was my salvation. There were days when he would come home from school and find me totally exhausted. He would take over and work with his sister. He really kept me going. Bob and I may have spent every cent we had in the world on Teresa between medical doctors, examinations, and tests but we became a closer family. I guess the good Lord knew we were a strong enough family to accept His special gift to us, Teresa.

Grandparents are a joy and my mother, "Nana", gave Teresa her love and affection from Day One following the total shock of accepting Teresa with all her disabilities. My two brothers help if asked, but I don't often call on them unless it is necessary. Bob's parents, "Grandma and Grandpa" are super too! They accept Teresa for the beautiful little girl she is. Bob's sisters and brothers treat Teresa like any other child. I am never embarrassed or ashamed to bring Teresa to any of their homes. I suppose all my relatives and Bob's too at one time or another must have felt sorry for Bob and I, but thank God they don't show it or say anything to make us feel uneasy.

My son's friends come in and out of our home constantly and they accept Teresa as a little girl to play with, fool and tease. Believe me she loves it, what little girl wouldn't.

My friends and Bob's seem to accept Teresa as she is, at least in our presence. What they really think and feel we don't know but we haven't had any feeling of nonacceptance in our presence. Most small children ask questions but that is part of the growing process and usually if we tell them that Teresa cannot see them but can hear them, they accept it and most times want to help and be the "big protectors."

Let me close by answering the question, "What's it like to be the parent of a visually handicapped child?" It's heart ache, heart break, hard work, determination, sleepless nights, loads of patience, and mounds and mounds of love.

But just one "Hi Ma," a great big hug and kiss with that great big smile from Teresa makes it all worthwhile.

WHY THE NEED FOR A PARENT SUPPORT GROUP?

Gretchen Smith
(U.S.A.)

"Our most important task is to get to parents as early as possible to educate them on the importance of their role in the development of their child who is visually impaired or blind." That quotation certainly is the central point of this International Symposium. It is the reason for this international gathering, and the goal toward which we work not just in the Symposium, but it summarizes the hope of all who work in this field of visual impaired and blind infants and young children: to reach the parents/guardians/caregivers, again I quote, "as early as possible to educate them on the importance of their role in the development of their child who is visually impaired or blind." I've taken the trouble to repeat the statement also because I proudly want it known that it came from my beloved husband, Joe Cambron Smith, as I wrote and rewrote and read to him, and rewrote this paper. We are attempting to carry out the task Joe described through a group that I would like to describe to you, so that you might consider it as an example or model.

From the beginning, I would like to establish with you that a technical professional, I am not. A mother who has developed a certain expertise through experience, I am. Our son, Andre, who is 14 years old was born without eyeballs (anophthalmia, or micro-ophthalmia, depending on the physician; anyway, ophthalmologists have not seen even the optic nerve in the eye cavities.) His sister, 13 and brother, 11, are both sighted. And my other five good stepchildren range in age from 15 to 26.

You, know, few of us anywhere receive education or courses in parenting. Most of us parent our children according to the cultural, moral, physical, etc. manner in which our parents related to us. Blessed are they who received positive parenting that conveyed emotional security and positive self-esteem! Increasingly, it seems apparent that those individuals are a minority in this world, at least according to our culture base.

In April of 1979, I wrote a short letter to the national monthly magazine, The Braille Forum. Were there any parents interested in sharing experiences about parenting? My husband and I are sighted, but we felt blind and visually impaired parents should be included. We did not know if we would get even one reply. We live in a rather rural area of South Central Louisiana in the Bayou Teche-Acadiana area. We were hoping to find a few other people, probably rurally located in other areas of our large country, so that we could communicate about a common interest: parenting and visual impairment. However, until three years ago, I had lived in New Orleans and during those 12 years of Andre's youth I had yearned and searched for a group of parents to share with. Finally, when Andre was 8, a group formed of parents of infants, which still left me searching.

Blind divorced parents were the first to reply. We have since found an extra asset in those adults who grew up with a vision problem, because they have much to help us with from their own upbringing (positive or negative). Some also have hereditary conditions which means they are interested in visually impaired and blind children as much as - if not moreso than - sighted parents. This is because accessible information on parenting is much less available in braille, large type or on tape. A sighted mother added, "I know sharing with parents of babies born blind would comfort them and ease their worries; also talking to older blind people can give others more insights into what's to come."[1] A professional article points out: "Also interaction with disabled children and adults and their families can help to reduce stereotypes."[2] Three months later, on July 4, 1979, we received our national charter from the American Council of the Blind, which meant we were a national organization with 50 charter members! The presidency went to me (which was not my intention; I had visions of my being a catalytic agent to get it off the ground, and step back and have someone else in the spotlight; I much prefer working in the background). Well, Joe, my dear husband was elected Treasurer. We two are the only sighted members on our eleven-person board of directors; we board members live in different parts of the U.S.A.

Our first purpose stated in our Articles of Incorporation is sharing experiences with members as well as non-members. We encourage our members to reach out to others who have vision prolems whether they are members or not. We realize our organization will not appeal to everyone, but we will readily respond to any inquiry.

We produce a quarterly newsletter in both large type and braille (computerized by the Lighthouse for the Blind in New Orleans), and are just venturing into taping our newsletters for newly-blinded parents and other multiply handicapped members who do not read braille. Our newsletter articles are written by our members, and *that* is what makes it so popular! I am Editor by default. Because of the breadth and diversity of membership of American Council of the Blind Parents - which includes families with vision problems, whether it is the parent and/or the child, and considerable professional interest in our newsletter - our newsletter articles include: 1) experiences related to vision problems that were positive or negative; 2) a home-teaching program for visually impaired and blind infants and young children that could be used as a model by parents in other places; 3) bibliographies on parenting and visual impairment, parenting and handicaps in general (usually available free through the library system, but also giving publisher data), as well as a bibliography on parenting for blind and visually impaired parents (with data on lending library sources and media); 4) several "how-to's" on initial infancy and childhood care from blind mothers; 5) articles by a low vision parent both on her growing up with a visual impairment, and her adult fears of impending blindness and coping with change; 6) games parents and pre-schoolers can play together; 7) announcements of events of relevance; and 8) continuing resource information on literature, organizations, products, etc. as our office learns of them. It seems that becuase we are a national organization that we are sent literature of all kinds that most parents would not receive as an individual. So, we pass it on in the newsletter. We also reprinted a marvelous article from a government-funded magazine, *Disabled USA*, entitled, "Look But Don't Touch: The Problems Blind Children Have Learning About Sexuality." [3]

The Idaho State School for the Deaf and the Blind produces a newsletter for all schools for the deaf and blind in our country. They requested permission to reproduce the first two articles in our second newsletter. "Accepting A Special Child" was a very poignantly written reaction of a sighted mother and her feelings initially toward her brain-damaged baby, and then learning of his blindness. "Make it Count" was filled with suggestions for stimulating the pre-school blind or visually impaired child, and directed to both parents. Of course, permission was readily given; and I wrote both mothers telling them and also commending them on how much farther their ideas and participation in our group was going than we had imagined!

The author of "Make It Count" is Mrs. Billy D. (Barbara) Byrd of Raleigh, North Carolina, an interesting and active mother of two children, almost-teenage sighted daughter and a visually impaired son, now about seven years old. In her December 10, 1979, letter enclosing the just-mentioned article, "Make It Count," she commented on

> ...one of the saddest things I have ever witnessed is the over-protective or non-thinking parent who keeps the infant in his crib or playpen, in the grocery cart, in the stroller - always confined, often not even in the same area as the rest of the family. Saddest of all, the parents do this without realizing that a sighted child sees and still gets information from his surroundings, but that the blind child gets almost nothing. Sometimes it's even done in an effort to protect the child! Many research studies document that this lack of external stimulation leads to passiveness, and ultimately rejection of new experiences; self-stimula-

tion patterns of behavior; and lack of development which is not related to the child's ability, but rather to his lack of experiences. It is never too late to begin, but in the case of child development, time lost can never be reclaimed; patterns are molded which may never be altered. Our children can make great strides - they just need more help, and we parents must be the help.

A congenitally blind mother wrote experessing her feelings of guilt when she was growing up because she took so much more of her parents time than her sighted siblings. In the same letter, she added, "I think the blind people can help the sighted parents and you can help us."[4]

A parent support group needs resources to turn to in many instances. We have no desire to or intention of duplicating services. Where an agency, organization or whatever can fulfill a specific need, we turn to our established file of resources. We purposely try to keep getting information on resources that are already available. We also (sad to say) continue to find new and important resources that have existed for years, but somehow are little known. We often hear from members, as well as non-members who write, that they were so lost until they found out about one or another resource.

Now I am going to give you excerpts from those who write us:

> (We are) parents of a 4 year old blind daughter,...our only child. I am 23 years old and have never been around anyone blind. I am trying to do everything possible to make my daughter's life as normal and happy as any other child....Anything that could help my husband and me help her would be greatly appreciated.[5]

> We are parents of two adopted pre-schoolers who are blind, and we also have a 10-year-old foster daughter who is deaf and visually impaired. These children are our lives, and whatever we can learn to help them, the better.[6]

> Please send us literature on your group and services available. Our son is 7 years old and legally blind.[7]

> Will you please advise me where I might obtain literature that instructs in the rearing of a blind child from infancy to school age.[8]

> (We) are the very proud parents of a beautiful 3 month old baby girl, Beth. Beth is blind: her diagnosis is bilateral optic nerve hypoplasia....We found out about Beth's vision about a month ago - so we are now getting out of our mourning period and are very eager to go forward...wanting and willing to do all that we can to help Beth and ourselves.[9]

> I am writing to express my interest in the parent organization for the blind. I am a visually impaired parent of a visually impaired child. My husband is blind.[10]

> I am the parent of a totally blind daughter and am interested in any and all information I can get.[11]

One of the first letters we received was referred to us from the National Office of the American Council of the Blind in Washington, D.C. It clearly stated:

> I am writing for any helpful information that you may have available to help us at home with the care of our blind two year old son. We would appreciate any direction you can give us. Thank you.[12]

The request was so simple. The response I wanted to give touched so many aspects of visual problems: general health and development of the child, parental attitude, services, agencies, rights, etc. That's when I began writing lengthy letters on the chance that a parent might not write anyone else. As with Barbara Byrd in those early days of our organization, rather lengthy correspondence went back and forth sharing about family, books, resources, etc. We were all learning and sharing.

An original goal of our group was trying to put persons in similar situations in touch with each other, if they so desired. Our most gratifying example has been two families who live about 1,000 miles or 620 kilometers away from each other. One of the families wrote that simple request letter just noted above. Both families have a child born brain damaged, epileptic and blind, and in both instances the parents were told the child would not live long. Since our home-office is also the national clearinghouse for our parents group, we asked each family if they would like to be put in touch with another very similar. One of the two mothers spoke openly of her joy each day that her baby was still alive, and added at the same time that she knew that he might die that day. As much as we empathized and cared about her situation, only another parent in a like situation could truly understand. These two families have been corresponding, supporting and aiding each other - in addition to our keeping in continuous touch with them - for almost two years. Their children are both still alive! And have surpassed the developmental stages professionals said they could achieve! We have put others in different situations in touch, too. That, we believe, is one of the greatest values of our organization.

When 1981 began, we had over 200 members in 40 of our 50 United States. Can this organization continue to enlarge and still remain personally supportive? Its address is our home, the enclosed garage of which is our office. So, we asked for volunteers in each state where we have members to become a State Resource, as we call it, for that geographic state. When I respond to someone writing us about membership, I say that a copy of my letter is being sent to the State Resource for the writer's state (or the nearest state with a Resource person). Our office supplies the State Resources with a file card on each member. The Resource person is responsible to keep a file of agencies, services, organizations, etc. within that state. We also ask for copies of their resources because at times a writer to us is seeking something not available in his or her state, but we could tell them of a nearby state where their need may be met.

Increasingly letters request information on forming local and/or regional chapters of our organization. Here the Resources can help greatly.

One evening early this year, our telephone rang and a lady asked if this was the American Council of the Blind Parents. I responded that it was and gave my name. Then she said she was calling from Honolulu, Hawaii, and I was just the person she wanted. She had been informed that her four-month-old baby was totally blind. She had phoned agencies, been referred, and told she would be phoned back, but at this point she ahd not heard from any of them.

Personally, I was rather awed at her calling from such a distance! As I always do, first, I explained that I was not a professional, simply the parent of a child born totally blind also. Basically, I reminded her that her baby was not aware of blindness at this time (and would not be for several years). I urged her to treat her baby as any other baby - giving love, attention, talking, cuddling, etc. I offered and did send her back issues of our newsletter, recommending certain articles that ought to be of specific interest to her. I added that if she did not find what she wanted to know in the newsletters, let us know, and we would search it out for her. I am often fond of saying about our organization that we do not claim to have the answer, but we surely have lots of alternatives! In addition, I recommended the ACB state affiliate in Hawaii, called Alaho Council of the Blind. Most members are blind or visually impaired adults, I told her, but she would receive much support and help if she would contact that group.

A continuing concern I have had in writing this paper is the global perspective of participants from underdeveloped countries where the primary concern is to expend all possible energies to help prevent blindness. Overall economic conditions determine much of the emphasis of work for and with the handicapped all over the world.

I may be overly naive, but I honestly believe parent support groups are possible any place in the world. Of course, the structure, the direction of the group, again the cultural and economic conditions, and the individuals will vary. But the dynamic of sharing similar situations is what can make it function. In fact, the less social service programs there are, the greater is the need for volunteer support groups. Surely, it would be preferable if a professional could have a guiding or monitoring place within each group, especially in underdeveloped countries where folklore, tradition and superstition are strong influences in raising children, not to mention children with handicaps. I would not presume to state that you need to return to your country and begin helping form parent groups. In the first place, it is much more difficult for the professional to do; rather the professional's stance in a group's formation is as encourager, facilitator, monitor, advisor, etc. where possible. While the choice is certainly yours whether to consider encouraging such groups, as a parent I would most sincerely urge you to give the idea serious consideration. And in truth, from the professional point of view, this idea ought to have definite assets as a supplement to your work.

A recent article in one of those sophisticated outdoor leisure magazines seriously followed an ophthalmological team, SEE (for Surgical Eye Expeditions International [13]), into a sparsely-inhabited area of Mexico. Upon arrival in remote areas, hundreds of visually impaired and blind would be gathered, or still gathering, walking for miles in hope. The ophthalmologist would carefully check those waiting, and then ask that it be announced that he was very, very sorry, but he could only operate that day on those persons blind in both eyes, and he would do surgery on only one eye of each patient.[14]

A social worker in our state informed me that quotas have been reinstated. This means a state social service employee must show a specific number of social service cases opened, and closed, too often pushing a disabled person through the system and not really providing for the individual's need nor giving service to enable the person to achieve his or her potential. Few persons in social service work like the idea of quotas which tend to depersonalize the service.

In no way am I inferring that professionals themselves may not be dedicated, concerned for their clients, and give genuine interest and as much time as possible. There just always seems to be more need than the professional can meet.

Erin Marsh Spires, the author of "Accepting a Special Child," told of her experience with an eye specialist:

> We were there a good while when we were called into a dark examining room. The examination only took about five minutes, and I felt better already. Then the doctor told me my baby had very pale optical nerves. Of course, I asked him what that meant. And he bluntly told me that my baby was blind. That hit me like a ton of bricks.[15]

Regrettably, that is not the first or last parent who learns of his or her child's disability in such a manner. My place here is not to advise physicians or other professionals. I had an analagous situation when my late father, who was then in his 70's decided that somehting physically ought to be possible for Andre's anophthalmia. He insisted on our going to a world-renowned ophthalmologist in New Orleans. After a brief, quite brief, view into each of Andre's cavities, the doctor moved away speechlessly. Dad began asking what could be done. It surprised me that the doctor took so long to respond, then began somewhat haltingly saying there was nothing he could do. Yes, I made the trip for my Dad's sake. But I have often wondered about the doctor; he is internationally known for his surgical work; I imagine it must have been very frustrating to a man of his accomplishments not to be able to help. Maybe I misjudged. Yet, no matter what your expertise, there are always limitations.

Unless I am mistaken, professionals outnumber parents in this Symposium. In trying to do some research for this paper, practically nothing was available. One article entitled "The Professional's Dilemma: Learning to Work With Parents" by Milton Seligman and Patricia Ann Seligman pointed out approaches by professionals to facilitate interaction, cooperation and understanding on both sides. I now quote:

> In the past parents were usually held responsible for all difficulties. Although parents do contribute to difficulties, we hold that the "expert," because of professional training and vocational commitment, must bear the major responsibility

for developing positive working relationships.

The article urges professionals: "...to understand coping mechanisms parents use during the different adjustment phases,...to distinguish between the lack of acceptance when it occurs early, and long-term denial," and considers parental attitude, "similar to a recently divorced spouse, they need time - and sometimes counseling - to become accustomed to the new situation...." [17]

The article continues:

> ...(S)ome professionals consider parents more of a nuisance than a resource. Parents are seen as persons who have lost their objectivity and who therefore possess distorted perceptions of their circumstances and their child. These professionals believe that since they are specifically trained and are being paid for their expertise that only they can give profound, expert opinion.... It is necessary for the professional to view parental perceptions as adding to the information they already have, instead of considering them contradictory..."[18]

The authors conclude: "Professionals who base their evaluations on the information received from other professionals, their own observations, the child, *and the parents* (italics by the authors) are in the strongest position to be helpful."[19]

Please understand that we *do* want professionals interested; we continually encourage professional input and support. Professional experience and expertise will continue to search for answers to help all of us who deal with handicaps. Support groups, hopefully, will be able to supplement that, too.

A professional joining our group wrote,

> ...I found your newsletter very informative and feel that it would be beneficial to most of the parents I work with. However, sometimes it is difficult to motivate them to join parents organizations. [20]

Joe and I very well realize the truth of the last statement. Many parents of young children who are visually impaired or blind are unable to face blind or visually impaired adults. This can be due to stereotyping, possibly previous negative experience with maybe even another disability than visual impairment, the "tin-cup" and beggar image, or simply the preconceptions they were raised with in their culture that made any disability less than "normal," less than the rest of the population, inferior and/or sick, etc. Thus many parents have difficulty even imagining their child who has a vision problem as an adult because the parent finds himself and/or herself repulsed by the adult image of visually impaired and blind persons.

These ideas are still being fought daily in the U.S.A., so I can imagine how much more difficult education of the public must be in less developed countries!

There is a "Philosophy of a Handicapped Person" which is important that I share with you at this point. It appeared in the United States Association for Blind Athletes Newsletter, Spring 1978, and the author is unknown:

> *I do not choose to be a common man. It is my right to be uncommon if I can. I seek opportunity, not security by being a kept citizen, humbled by having the state look after me. I want to take the calculated risk: to dream and build, to fail and to succeed. I prefer the challenge of life to a dole. I will not trade freedom nor my dignity for a handout. It is my heritage to stand erect, proud and unafraid; to think and act for myself, enjoy the benefits of my creations and to face the world boldly, and say, this I have done.*[21]

All Symposium participants hope that our children who are visually impaired or blind can mature to hold such a philosphy. Some will not live that long nor reach the mental maturity to understand that. But we who are responsible for these infants and children can utilize that philosophy in our work with them. The two mothers of those children considered multiply handicapped and terminally ill about whom I told you already live the philosophy. The first mother states,

> ...Somehow, and I really can't explain how, I've been able to totally accept Bradley just the way he is. I find great joy in his accomplishments and in his ways - as strange as they may seem to others. I don't think much about Bradley dying, although deep down we know we must accept that someday.[22]

The appropriate closing for this paper is with the statement of the second mother:

> And while learning to accept and love my child, my outlook on life has changed totally. I've learned to be happy he is alive. And value not only the positive things about him, but the negative things as well. He is my child and I love him.[23]

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[5] Letter from a sighted mother, July 15, 1980.

[6] Letter from a sighted mother, August 14, 1979.

[7] Letter from a sighted father, November 6, 1979.

[8] Letter from a sighted mother, December 4, 1979.

[9] Letter from a sighted mother, July 17, 1980.

[10] Letter from a visually impaired mother, November 20, 1979.

[11] Letter from a sighted parent, July 19, 1980.

[12] Letter from a sighted parent, July 15, 1980.

[13] Surgical Eye Expeditions International is a non-profit organization dedicated to combating preventable and correctable blindness in areas of the world where such medical care is unavailable. (See next footnote, 14, pages 33-35.)

[14] Sue Bennett, "A Battle Against Blindness," Rocky Mountain Magazine, Denver, Colorado, U.S.A., May/June 1980, pages 33-39.

[15] Erin Marsh Spires, "Accepting A Special Child," American Council of the Blind Newsletter, Vol. I, No. 2, January 1980, pages 1-2.

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[20] Letter from a sighted professional, June 11, 1980.

[21] "Philosophy of a Handicapped Person," reprinted in The Braille Forum, Vol. XVII, No. 1, July 1978, page 24.

[22] Letter from a sighted mother, December 20, 1979.

[23] Erin Marsh Spires, "Accepting A Special Child," pages 2-3.

IMPAIRED VISION AND MOTOR DEVELOPMENT

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When judging the motor development of children, one must look not only at development of motorial skills, but also at interactions between movement and perception. Blind children are deprived of a very essential mode of perception, and clearly this will influence their motor development.

During the first three months of life, blind children and children with normal vision do not differ greatly in reaching the milestones of motor development. Later on in their development marked differences become apparent (1). In general, these differences concern the making of changes in body-position, for instance the transition between standing and sitting (2). Also, milestones like sitting without support, standing without support and forward movement of the body, are reached at a significantly later age in blind children.

Figure 1 shows the ages at which normal children and blind children can lift their head from a prone position; the striking time-difference usually spans a period of 6 months. Recent work from the United States suggests a correlation between maturation of the vestibular system and the age at which head-lifting occurs in blind children (figure 2). The rocking movements, preceeding the act of head-lifting in blind children, also indicate that the vestibular system plays a key-role in the development of the ability to lift the head from a prone position. We also have to account for the fact that in children with normal vision head-lifting occurs with the cephalo-caudal aspect of physiological extension . In children with normal vision, development of motorial skills is in harmony with regression reflexes: head-lifting coincides with the development of fine, coordinated activity of the trunk erectors. When blind children learn to lift their head from a prone position, the stage at which fine movements for straightening the back develop, has already been passed.

Is this the reason why so many blind children lean forward when standing? Does this explain the high prevalence of scoliosis in blind children? Is a relative lack of extensor-tonus also responsible for the many secondary orthopedic problems in blind children? In my opinion there is a causal link between these symptoms and the relative lack of extensor-tonus in children with impaired vision. Not only do this marked differences exist between blind children and children with normal vision, there also is a difference in the patterns of development: in blind children the following sequence in development of coarse motorial skills can be observed:

1. Sitting alone, momentarily
2. Rolling from prone to supine position
3. Sitting alone, for a longer period
4. Lifting up head and chest
5. Walking with support
6. Sitting alone
7. Standing alone, with support
8. Standing alone, without support
9. Crawling
10. Walking a few steps

Moreover, blind children reach these motor milestones about 2-6 months later than do children with normal vision.

Body image:

The development of manipulation and exploration depends heavily on development of coarse motorial skills and body image . Body image is the net result of a combination of perceptive skills: vision, hearing, touch, and proprioception; in this combination vision probably is the most important mode of perception.

For instance, in the development of children with normal vision we can observe a trend to orientation on the midline: the child plays with his hands in front of his body, he examines hands and arms, later on other parts of the body; playing with the toes is another example of orientation on the midline.

Children with impaired vision play more often with legs and feet than with hands and arms; they start to hold their hands in front of their bodies at a later age than children with normal vision; arm movements are characterized by long periods of adduction and abduction-flexion patterns. Experience from England shows us how to speed up the trend to orientation on the midline in blind children, making use of auditive impulses: armbands with little bells at an early stage of development, anklebands at the age of 4-5 months. The sound of the little bells attracts attention, and the child can locate and discover his hands and feet more easily, ending up playing with his hands and toes at a normal age. For a child with impaired vision the discovery of both his hands is of great importance: tactile perception is a substitute for normal vision, and can help bridge the gap between his own world and the outside. Tactile perception is also very important for the exploration of objects: hand-held objects are always put in the mouth to feel shape and texture . Children are better motivated to grand look for objects, when they are already familiar with the feel of these objects, or when these objects produce sounds.
In blind children exploration of objects is a slow, intellectual process, requesting time, understanding and patience, both from the children and their parents.

As we have seen earlier, normal vision is of primary importance in the development of the body image. Recent studies from the neuropsychological department of the Children's Hospital in Toronto indicate that blind children have a different body-image, compared to children with unimpaired vision: particularly the back, the arms and the hands are out of proportion with the normal body image; the trunk is long and narrow, arms and hands are large. To help children with impaired vision in the exploration of their body and the development of their body image, ample room should be reserved for tactile stimuli via the skin. Techniques from the far East (Shantala) seem eminently suitable for this purpose: in my own experience these massage techniques result in an increase in spontaneous movements in blind children, in a very short time.

The influence of sound:

Man uses sound in many different ways, of which the most important way serves communication with other people. Another way serves interpretation of signals from our direct surroundings: for instance the buzzing sound of a nearby mosquito alerts most persons, while the disappearance of the same sound brings about a sense of relaxation. Another example is the trusted ticking of an alarm clock, which tells us that we are lying safely in our own bed. Interpretation of sound is always done in respect of ourself, and in this process distance, direction and movement are important parameters. From birth on, every child goes through a process, learning how to use and interpret sounds. In children with normal vision this learning process results in fast audio-visual associations: sounds are easier to interpret when the source can be seen. Although blind children in their neonatal period also exhibit certain primitive auditory reflexes, aimed at location of the source of sounds, they will be slowed down in their search for these sources both by the time-lag in motor development and by their visual handicap. They have to learn to rely on slow audio-tactile associations. In guiding and helping blind babies and young children, it is very important to take into account the essential differences in audio-visual and audio-tactile associations: for instance talking to a blind baby could be done in conjunction with tactile stimulation, like taking the baby's hands, or placing the baby's hands on the cheeks of the speaker. In general it is better to bring the hands close to the source of the sound: this sequence ensures a tactile confirmation of what the baby hears. When in the guidance of blind children allowances have to be made for a time-lag in motor development, or when "silent" new objects have to be introduced for exploration and recognition, cooperation between physiotherapist and psychologist becomes mandatory.

Motor development is an unparalleled process, and it is fascinating to see how children can adapt to and compensate for a handicap, time after time, in the course of the process. Motor development of blind children is unique in itself - the visual handicap dictating the course of the process - but here the outcome can clearly benefit from guidance and advice: it takes experts however to guide blind children to their own personal optimum in motor development.

Guidance of blind children in pediatric physiotherapy:

The pediatric physiotherapist should not play solo's in the guidance of children with a visual handicap: his activities should be incorporated in a management-plan, organized preferably as a guidance service on an out-patient basis. Pediatric physiotherapy differs fundamentally from physiotherapy for adult patients; not only in terms of treatment time - usually for one hour a week - but especially because close cooperation with the children's parents is involved.

In infancy every organ-system of the body - particularly the central nervous system - goes through stages of very rapid development. Organ-system defects, especially defects in perception, have far reaching consequences for development when they are effective during these stages, that is in infancy. Therefore parental instruction has to start as early as possible: the sooner a guidance-plan can be put to work, the greater the influence on general development will be. Apart from this, early therapy can prevent secondary problems in those blind children who also have neurological defects: in infancy the capacity of the central nervous system to adapt to and compensate for defects is at its greatest. Treatment and guidance of chidren with impaired vision requires more than a general knowledge of developmental neurology and child development: a good reason for referral of these children to pediatric physiotherapists who are trained in neurodevelopmental treatment (NDT).

Comprehensive assessment of the child's motorial skills and developmental profile should be the basis of management planning and instructions for parents. Such assessment not only registers the phenomena that are specific for children with a visual handicap, but also neurological soft signs, if present. In this way the pediatric physiotherapist learns to understand the 'motor language' of each child individually - condition for communication. In my opinion, getting along with blind babies and infants depends on one's ability to use body language, and it follows that close body-contact is the best way to listen to this language.

Instructions for parents are also based on these two principles: using body language and 'listening' by means of body contact, taking into account the general development of the child. In this development the motor milestones have less importance than has the quality of movement. In the handling of the child - including every-day activities like bathing, feeding, dressing, carrying - therapeutic elements can be introduced by the physiotherapist. Once taught to the parents, these elements are continually at work, as part of every-day life, and will have a far greater effect on motor development and quality of movement, than short sessions once or twice a week with a physiotherapist. Equally important, it helps the parents to understand the body language of their child, and thereby improves the parent-child relation.

Summary

Motor development is characterized - among others - by a raise in extensor muscle tone, starting at the head, with caudal progression. The lifting of the head is in part dependent on this extensor muscle tone, but vestibular and ocular feed-back mechanisms have to be present. The importance of visual information in the development of extensor muscle tone of the trunk is stressed. It is the author's opinion that impairment of trunk muscle tone will lead to orthopedic problems, such as

scoliosis. As known from the current literature blind infants do have a high incidence of orthopedic problems, compared to infants with normal vision.

Well-chose handling instructions for parents of blind babies are very important for a normal development of extensor muscle tone, and the instructions have to be followed right from the moment visual impairment is noted.

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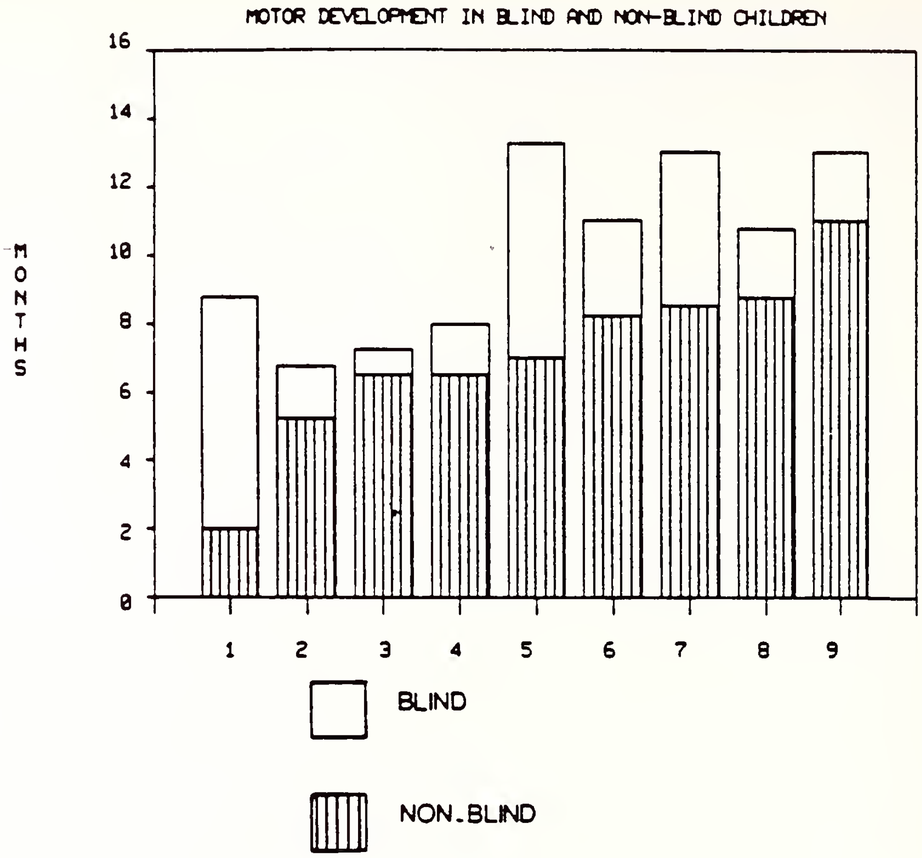
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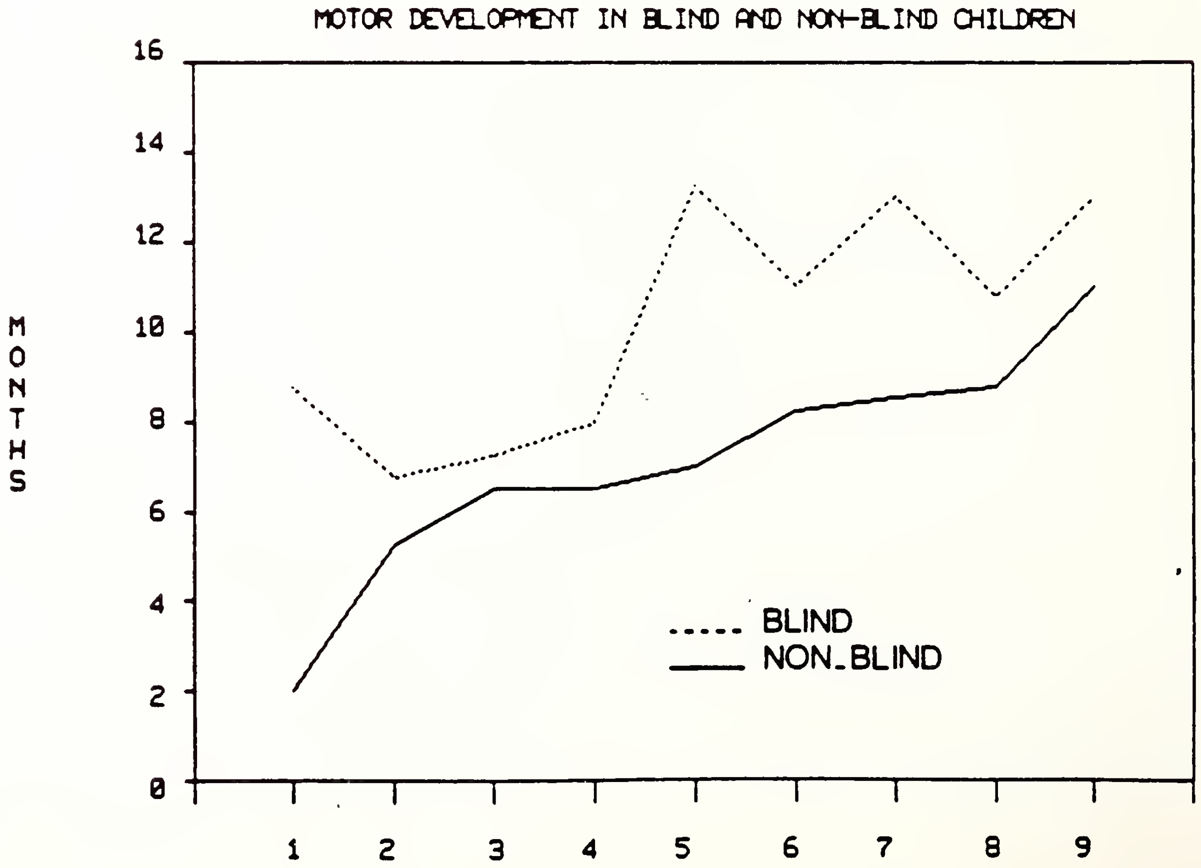
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THE UTILIZATION OF ORIENTATION AND MOBILITY SPECIALISTS IN PRESCHOOL PROGRAMS IN THE U.S.

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Abstract

Growth trends in the field of orientation and mobility (O&M) in the U.S. are traced from the standpoint of impact on services to preschool visually impaired children. Heretofore unpublished data collected from a study by Uslan, Peck, and Kirchner (1981) on where O&M specialists work and whom they serve are presented. The issue of role definition of the O&M specialist is addressed and problems of professional preparation and certification are discussed.

The field of orientation and mobility addresses the need of the visually impaired individual to move independently, safely and purposefully through the environment. The development or reestablishment of these skills is the goal of the field's practitioner, the Orientation and Mobility (O&M) specialist. The idea of teaching orientation and mobility, as it is presently practiced in the U.S. first appeared in the curriculum of the blind rehabilitation program of the U.S. Army's Medical Corps during World War Two. After the war, the Veterans Administration Hospital in Hines, Illinois, inherited the program and further developed workshops conducted by O&M specialists on leave from the Hines Facility. Since the goal of the Veterans Administration Program was to facilitate the transition from new blindness to life as a blind person, problems relative to congenital blindness became a focus of attention at these workshops. For educators the development of O&M skills took precedence over the reestablishment of these skills.

When the university programs began to train O&M specialists in 1969, the utilization of O&M specialists by civilian agencies had already taken hold. Today, two federal agencies in the U.S. Department of Education support university O&M training programs. The Rehabilitation Services Administration (RSA) supports universities' preparation of students to work with youth and adult populations while the Office of Special Education (OSE) supports universities' preparation of personnel to work with children and youth. While there is overlap in RSA and OSE target populations, the question needs to be asked: Are O&M specialists trained to work primarily with youth and adults, adequately prepared to work effectively with young children; and conversely, can specialists trained to work in the educational setting work effectively in the rehabilitation setting?

1980 Manpower Data

Data from a recently completed manpower study (Uslan, Peck and Kirchner, 1981) show that today approximately 45% of all full-time equivalent O&M positions are in schools (either residential schools for the blind or public day schools). (See Table 1). Table 1 also shows that the number of recipients of O&M services in the schools are disproportionately fewer than in agency settings. A possible explanation for this is that O&M specialists in the public school spend a large percentage of their time traveling. Many are itinerant instructors, traveling to schools in a district as well as to the homes of the children they serve. Although no data exist to describe public school caseload characteristics, it has been reported that caseloads are often large, and that priority is often given to the older children having the most obvious and immediate travel needs (Ferrell, 1979).

It is also significant to note that 1980 O&M caseloads in private and state agencies reflect a wide range of ages. As Table 2 shows, 2% of all recipients of O&M services in state and private agencies consisted of children under the age of six. It should be pointed out that the caseloads of some O&M specialists included much higher percents of children under age 6, while most served no children that young.

Growth Trends

As for growth trends in the field of orientation and mobility, 1980 data indicate that the 1980 demand for more O&M specialists (measured in budgeted vacancies) is greatest in the public school sector (see Table 3). Earlier, furthermore, a strong perceived need for O&M specialists in the public school sector had also been indentified by Smith, Dickerson, and Liska (1978). Data from the Uslan et al. study (1981) on the supply of O&M specialists show that the proportion of O&M graduates trained to work with children is also increasing. Approximately 28% of the total pool of graduates trained from 1960 through 1980 received their training in a university program emphasizing work with children (378 out of 1350). During the 1979-80 academic year, approximately 38% of the students in university O&M programs were enrolled in programs which emphasized work with children (53 out of 140). However, considering the budgetary changes taking place as a result of the new Reagan Administration, it is difficult to say whether this growth in supply and demand will be sustained through the 1980's.

The major impetus for growth in preschool programs for the visually impaired in the last five years has been the 1975 Education of All Handicapped Children Act (Public Law 94-142). The Act is designed to provide an individualized education program in the least restrictive environment for every handicapped child in the United States from age 3-21. Although not specifically mentioned in the language of the Act, the general consensus is that O&M services fall within the broad definition of "related services" (Smith, Dickerson, Liska, 1978).

Estimates regarding the preschool visually impaired population in the U.S. vary considerably depending on how visual impairment is defined. The National Center for Health Statistics estimated that there were approximately 9,400 children under the age of six who were severly visually impaired in the U.S. in 1977 (NCHS), while the National Society for the Prevention of Blindness estimated the legally blind population of children age 0-4 to be 6,450 in 1978. (NSPB, 1980).

From the recent U.S. Census (U.S. Bureau of the Census, 1980) it is clear that the rapid decline in the population of children under age six that took place since 1960, has leveled off. Furthermore, given current U.S. fertility trends, the U.S. Bureau of the Census (1977) projects a 25% increase in the population of U.S. children age 0-5 from 1979 to 1980. Thus, assuming that the prevalence rate of visual impairment remains the same, it can be predicted that the total population of visually impaired preschool children will grow to between 8,750 legally blind and 11,700 severely visually impaired children in 1990.

In regard to the number of visually impaired children being served in the U.S., there is very little hard data. In their nonrandom samplings of preschool programs in the U.S., Felix and Spungin (1977) found that public school and non-public school settings (state and private agencies and residential schools for the blind) were serving approximately 2,225 children under the age of six. For every preschool child served, then, it can be inferred that there are at least three children who are not being served. Furthermore, unless PL 95-142 is aggressively implemented in the coming years, a dramatic growth in the number of unserved preschool visually impaired children is, unfortunately, a very real possibility.

Role Definition

The problem of certification standards for O&M specialists working in public school settings attests to the fact that consensus on role definition in O&M has not yet taken place. While the American Association of Workers for the Blind (AAWB) has established its own standards for O&M specialists, Smith, Dickerson, Liska (1978) reported that only five of the states recognize these standards for certification to teach in public schools. Furthermore, these same authors found that 44 of the 50 states have no category of state certification for O&M specialists. In many cases, an O&M specialist applying for certification by a state must hold, or earn certification in education or special education beyond their O&M certification. Ferrell (1979) suggested that more universities train specialists dually qualified in Education of the Visually Handicapped and O&M. While this would result in the alleviation of the certification problem for those graduates, it would not solve the problem of defining the role of the O&M specialist in the preschool setting.

How do O&M specialists view their role in working with preschool children? In order to gain some insight into this question, an informal survey of O&M specialists were surveyed. They reflected a wide variety of agency and school settings. In terms of where they received their O&M training, the instructors represented most of the university O&M programs. Most had graduated in the mid 1970's.

All of the group had at least some experience with or exposure to preschool children before they went for their university O&M training. Significantly, the overwhelming consensus of the group was that their O&M training did not prepare them to work with preschool children. The few O&M specialists who fel that they had been academically prepared for work with preschool children had been dually trained as a teahcer of the visually impaired/O&M specialist or had received undergraduate background in special education or elementary education.

Contact with parents and with other professionals was described with a great deal of enthusiasm. Nearly everyone surveyed expressed the feeling that the team approach was the only effective way to work with infants and preschool age children. Listed below are the people who work closely with the O&M specialists surveyed. Listings are in order of most-to-least frequent contact reported, and the percentages of the 24 respondants listing each contact.

Parents	88%
Physical Therapist	63
Early Childhood Specialist	46
Classroom Teacher	46
Occupational Therapist	46
Teacher of the Vis. Hand.	33
Speech Therapist	17
Other O&M Specialist	8
Child Psychologist	8
Social Worker	4
Program Supervisor	4
School Nurse	4

In summary, today more than ever, O&M specialists are working in settings where preschool visually impaired children are being served. The field of O&M is in an excellent position to assist in meeting the growing need for providing services to preschool visually impaired children. Yet despite its rapid growth through the 1960's and 1970's, the field of O&M has far to go in regard to defining the role of the O&M specialist working with preschool children. Until competencies required for work in O&M with children can be agreed upon, the problem of professional preparation and certification will remain difficult to solve.

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Table 1. Full - Time Equivalent (FTE)* O & M Positions and Recipients of Services by Type of Service Setting: U.S., 1980

	FTE Positions		Recipients of Services	
Type of Service Setting	N	%	N	%
Agencies				
State Agencies	210.5	(29%)	6070	(34%)
Private Agencies	165	(23%)	6783	(37%)
Veterans Administration	30	(4)	502	(3)
Schools				
Residential Schools	93.5	(13)	2059	(11)
Public Schools	230.5	(32)	2685	(15)
TOTAL	729.5	(100%)	18099	(100%)

*The number of FTE positions was computed by treating all part-time positions as half-time.

Table 2. Recipients of Orientation and Mobility Services by Age and Type of Service Setting: U.S., 1980

Type of Service Setting

Recipient's Age	Agencies[a]		Residential Schools		Public Schools		Total	
	N	%	N	%	N	%	N	%
Children								
Under 6 years	267	2%	62	3%	*	*	*	*
6 - 12 years	480	4	611	30	*	*	*	*
13 - 18 years	693	5	977	47	*	*	*	*
19 - 21 years	1253	9	329	16	*	*	*	*
Subtotal Children:	(2693	20)	(1979	96)	(2685	100)	(7353	41)
Adults								
22 - 44 years	3730	28	80	4	0	0	3810	21%
45 - 64 years	3467	26	0	0	0	0	3467	19
65 years and over	3465	26	0	0	0	0	3465	19
Subtotal Adults:	(10662	80)	(80	4)	(0	0)	(10742	59)
TOTAL All Ages	13355	100%	2059	100%	2685	100%	18099	100%

[a] Includes state and private rehabilitation agencies and the Veterans Administration

*Age breakdown of recipients was not obtained from public schools; therefore totals for sub-categories of children cannot be calculated

Table 3. Demand for O & M Specialists in the U.S. Expressed in Number of Full-Time Equivalent (FTE) Budgeted Vacancies by Type of Service Settings: U.S., 1980*

Type of Service Setting	Budgeted Vacancies	
Agencies	N	%
State Agencies	31.5	(23%)
Private Agencies	40.0	(29)
Veterans Administration	0	(0)
Schools		
Residential Schools	17.0	(12)
Public Schools	50.5	(36)
TOTAL	139.0	(100%)

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* Source: Uslan, M. M., Peck, A.F., Kirchner, C., "Demand for O & M Specialists in 1980," JVIB, 1981.

THE EDUCATION ADVISORY AND PARENT COUNSELLING SERVICE OF THE ROYAL NATIONAL INSTITUTE FOR THE BLIND U.K.

L. Marianne Eustis
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The purpose of this paper is to introduce you to one of the more recent developments in services offered by the Royal National Institute for the Blind in Great Britain.

This is the Counselling Service set up by the Institute ten years ago. It was established especially for the parents of young, visually impaired, pre-school children.

"Counselling" has been defined as "the offering of advice and guidance by one person using his knowledge, skills and understanding in a relationship with another, to try to resolve those personal and practical difficulties which affect the latter's health, happiness and way of life".

The aim of any counselling service should be to promote understanding of a problem, to seek an appropriate solution to the difficulty and then to take the necessary action to bring about a satisfactory conclusion.

That is what the R.N.I.B. has tried to do through its various welfare and educational activities since its foundation as the "British and Foreign Blind Society" in 1868. (The "Institute" title was adopted in 1914 and the Royal Charter was granted in 1949.)

This week we have been deliberating together on what is or should be done to help the young visually handicapped child to develop his skills and abilities and to make progress in an orderly fashion, comparable, perhaps, to that of his sighted peers.

The earliest attempts by the R.N.I.B. to offer advice and support to parents were made as long ago as 1918 when the first "Sunshine Home Nursery School: was opened at Chorleywood. During the next fifty years there followed many other support services: more nursery schools, including some which cater exclusively for mentally-retarded blind children; two grammar schools were established, two schools for older blind, additionally handicapped children at junior and senior level (Rushton Hall and Condover Hall School) and a special unit for deaf/blind pupils at Condover (Pathways). Spina Bifida children with visual defects were catered for in one R.N.I.B. nursery school.

1954 marked the beginning of a new era of different support services when the "parents' unit" under Mrs. Toomer's direction and guidance was established. At first, the unit was a nursery school in Devon but later, in 1961, it was transferred to a house in Northwood near London. At a time when educationists and people from other disciplines were developing a greater awareness of the needs of young children, particularly those with a handicapping condition, the parents' unit continued to offer a most beneficial period of support to the parents of young visually handicapped children. The practical guidance and wise counselling by Mrs. Toomer helped to restore many a parent's confidence in his or her own ability to cope with their blind child.

"The function of an educational process is to provide appropriate environmental stimulii from birth onwards..." and "that advisory services should be the sequel to early and accurate diagnosis of disability in children" were two of the recommendations of the Plowden Committee (1967). About the same time two surveys undertaken by Dr. J.M. Langdon (then Principal of the Royal Normal College, age range: 16 to 21) showed that parents complained about the absence or inadequacy of non-medical counselling at, or immediately after, diagnosis of a visual defect had been made. As one result concerned in any way with the welfare and education visually handicapped children was provided in the Midlands by the Birmingham Royal Institute for the Blind for about a year. The counselling was undertaken by Mrs. Heather Jones, a very experienced teacher and one time headteacher of the Sunshine Home for Spina Bifida Children (Overley Hall). This pilot scheme was most successful and the need to extend the service offered by Mrs. Jones was quickly evident. The Royal National Institute for the Blind was approached and the present service was launched nationally. Within three years there were three advisers. By March 1975 the number had increased to seven and by January 1979 a further two advisers had been appointed. The team of nine advisers - seven women and two men - is co-ordinated by Mrs. Heather Jones, the Senior Adviser. The rapid growth of the service and the influence it has wielded since its inception in 1970 has widened the scope of the work of the R.N.I.B advisers.

The establishment of the R.N.I.B. Advisory Service was followed some months later by a second support service, created by the Manchester Education Authority. This second service was designed to meet the needs of partially sighted children attending the local authority's ordinary schools. It was a peripatetic teaching service. These two different, but essentially complementary services, formed the blueprint for the many other teaching or advisory services which flourished between 1973 and 1979. Each county's teaching service will vary according to the finance available, the preliminary planning, the aims and policies of each county council and the number and type of educational and hospital facilities within each county's area. Health authority and educational area boundaries do not often coincide in the U.K. at present. There are now about forty "Counselling" services but, unfortunately, there remain many anomalies in the facilities available to the parents of young visually handicapped children, depending upon which part of the country they live.

How does the R.N.I.B. Advisory Service work? First and foremost it is a service for PARENTS of visually handicapped young children, but is available also to anyone else concerned with their welfare and education.

ii. It is entirely free, both to parents and local authority agencies

iii. Referrals may be made by anyone, but visits to a child's home are made only at the invitation of his parents. There are no formal application forms to be completed - a letter from the parents themselves, or on their behalf, to the R.N.I.B. Education Officer in London, or to the regional adviser, if this person is known, is all that is required. The adviser will then arrange to visit as frequently and regularly as necessary, for as long as the parents wish to maintain the contact.

iv. Formal registration as blind or partially sighted is not essential. Whenever it is sought, advice will be offered if a child has a severe visual defect.

v. Additional handicapping conditions are no barrier - the adviser will visit a multi-handicapped child at home and at his school to advise parents and teachers, so that some degree of consistent management is established and continuity of progress is maintained.

vi. The age range is wide - from birth, or time of diagnosis of defect, to school leaving age.

In this way careful monitoring of a child's general development and progress educationally over a period of time is ensured and the likelihood of inappropriate educational placement is lessened.

Who are the advisers?

Each member of the team is a qualified and experienced teacher of blind children. Each has lived and worked in special schools for the visually handicapped. Some of the advisers have gained additional qualifications and experience in other areas of special education - deafness, physical and mental handicap and pre-vocational training. Thus, within the team there is a vast amount of expertise.

The offereing of continuing advice to parents and teachers over a long period covers a wide range of subjects. These will include:

1. The defect itself and the effect of it upon a child and his family.
2. The stimulation of residual vision and the development of all the senses to a high degree of efficiency and discrimination.
3. The educational system in general, the provision in the area for blind and partial-

ly sighted children and the policy of the local authority on integration.

4. Advice on matters affecting the everyday functioning of the child: feeding, toilet training, self-care skills, play materials.
5. Child development generally and how the visual defect affects the visually handicapped child's acquisition of cognitive skills, mobility and language.
6. Visits with the parents to schools or units for the visually handicapped will be followed by discussion of the facilities, supply of books and other equipment, and so one.
7. Discussion of financial allowances - attendance, mobility allowances and Rowntree Trust Fund Grants, if any of these is applicable to the particular situation.

The R.N.I.B. advisers keep abreast of new developments in research through exchange of reading matter, discussion and through regular in-service training courses; these may be a one day course or a three day annual session. In addition, regular national meetings are organized to which local authority peripatetic teachers and advisers are invited to discuss and exchange ideas, or the latest treatment to combat disease or handicapping condition, or on some other topic of mutual interest.

Earlier, I mentioned the widening scope of the work of the R.N.I.B. advisers. This will include:

(a) Co-operating with other disciplines in the assessment of young visually handicapped chidren at Child Development Centres and discussing the requirements of the child in any early intervention programme being planned
(b) Visiting jointly and thereby sharing knowledge and expertise with health visitors, social workers and educational psychologists
(c) Assisting through co-operation with the R.N.I.B.'s specialist Careers Officer, to ensure that those pupils wishing to undertake a course of further education at University or other similar establishment are properly prepared and equipped with the necessary aids
(d) Addressing interested groups of people on the subject of visual defect, its effects on the child, the aids and equipment available and the achievements and skills of blind and partially sighted chidren and adults
(e) Attending local and national conferences on various aspects of disability and on educational matters generally
(f) Advising workers in para-medical disciplines, teachers and others concerned with the care, welfare and education of visually handicapped, mentally retarded children and adults in subnormality hospitals
(g) The members of the team work closely with the staff at the Research Centre for the Visually Handicapped at Birmingham and the departments of other universities to assess and evaluate new programmes, aids and techniques which are being developed.
(h) The stimulating of interest by advisers in their own regions to try to improve the facilities provided locally for all young visually impaired persons

Despite the many reports commissioned and published by the government in recent years on services to young children, e.g., Plowden 1967, Vernon, 1972, Warnock 1979, there are still many areas of the United Kingdom where facilities are very limited and widely scattered. Whether or not a child is able to benefit from a wide variety of support services will depend greatly upon the area in which he lives and the interpretation of the recommendations of such reports by the individual administering local authorities. My own region - Wales - is just such an area. Within the Principality (which is about the size of Israel), I work in a mainly rural area covering four large counties, only one of which is industrial. No county has its own peripatetic teacher for the visually handicapped; facilities for the assessment of blind and partially sighted children are inadequate; toy libraries are few and widely scattered, based mainly in schools or hospitals in the larger towns and are available usually during a normal working day, i.e., 9 a.m. to 5 p.m. Because of the cost and the poor public transport services, many parents cannot use these facilities and are further isolated because they cannot meet other parents with problems similar to their own.

Yet in three other counties in Wales, in the south of the country, there is a residential school for the blind and partially sighted and each county has a peripatetic specialist teacher; several special units for the visually handicapped at different levels - infant, junior and senior - have been established; there are several toy libraries and special playgroups for the handicapped, large teaching hospitals with Child Development Centres for adequate assessment of visually handicapped children and university colleges with research departments.

There is clear evidence in all literature and Reports concerning blindness and other handicaps that the availability of an understanding counsellor with knowledge and experience is a boon to a family at a crucial time in their life. This cannot be emphasized too strongly.

Simon Olshansky in an article on counselling the parents of mentally retarded children suggested that such parents suffered "chronic sorrow: for the normal child which they had anticipated so happily, only to learn that they now faced a life-time of coping with a child who would never mentally grow up. Olshansky went on to comment, "this need for repeated counselling is natural and should not be regarded as a sign of regression or neurosis". In one respect, this is equally true of the parents of young visually handicapped children. They, too, had looked forward to the birth of a normal baby and were equally shocked to learn of their child's disability. Like the parents of the mentally handicapped child, they experience guilt, anger, frustration and "chronic sorrow" but, in the main, if help is forthcoming at the right time at every stage of their child's development they may be given hope that their blind or partially sighted child will be able to live a normal life as a valued member of the community, contributing, like his sighted peers, to the society of which he is a part. The exceptions, of course, are those young children who are handicapped both visually and mentally. Their parents have an even greater "chronic sorrow" to bear and have need of every support service which can be made available to them.

If, at the time of diagnosis, a family can be put in contact with a counsellor or peripatetic teacher, then:

(a) a truer picture of the child is gained before the cumulative reactions of the parents and other relatives have complicated the situation,

(b) a mother may be encouraged to express her anger, her fears, her guilt and her sorrow. With time, and sympathetic understanding, she will become more relaxed and therefore more able to cope with her situation. The mother who cannot express herself in this way and relax, is unable to communicate to her child the love she has for him, with the result that the child's need for security and an emotionally warm, positive atmosphere in which he can develop favourably will not be met

(c) a family may be supported through what is likely to be a period of uncertainty and suspense. Hospital visits are frequent at this time - particularly if the child has more than one handicap - and we all have experience of the parents who say the doctors give them no information. We know, too, that members of the medical and para-medical professions are not always careful enough or sufficiently patient and understanding in their involvement with parents of handicapped children. Because of their own emotional state and their apprehension about the diagnosis or results of tests the parents often fail to hear what explanations are given to them by the Specialist, or, if they hear, they do not always understand. the adviser's vital role in this situation is as an interpreter of the medical information and the way it will affect the child's learning and development and what measures may have to be taken to overcome what difficulties arise.

(d) This is the time when parents should be advised to encourage their child to use whatever residual vision he has, as efficiently as possible.

Most of us would agree that favourable conditions for learning are important in determining a child's level of functioning - whatever the social, economic, intellectual or educational achievements of the parents. We should remind ourselves frequently that, like his sighted peers, the blind baby learns his early skills through a close, warm and loving relationship with his mother and later with other people and through his experiences. It is a relationship which is satisfying to both mother and child. With this to help him, the blind or sighted child will confidently move on to new and broader experiences but the unstimulated baby, without this satisfying relationship, will make very little progress. For this reason alone, the early involvement of a counsellor is fully justified. That the counsellor should be knowledgeable about the visual handicap and have practical experience of children similarly afflicted is vital. This should be understood especially by the members of the multi-disciplinary team involved with the additionally handicapped, visually impaired child but it applies also to the able blind child whose development is being monitored by the multi-disciplinary team. Conflicting advice by too many "experts" led one mother of an able blind child referred to me at the age of eighteen months to say, "I feel my son is not my son anymore - he belongs to the experts." This is a shocking indictment of the "team" and its methods of monitoring the child's progress. The members of the multi-disciplinary team were in effect using this blind child as a "guinea pig" on which to try their pet theories. The result was that they had succeeded in making this mother feel totally inadequate and incapable of caring for and helping her child. In their enthusiasm and desire to offer support to the family the team members had unthinkingly belittled the mother and had failed to achieve what they had set out to do.

What of the future? Because the scope of their work widens year by year, new avenues are explored. One of the effects the R.N.I.B. Advisers' work has had upon society in recent years is that of stimulating more interest in the needs of and provision for mentally retarded blind children who are not able to benefit from the help given in the Sunshine Home Nursery Schools, Rushton Hall or Condover Hall. There are no accurate statistics available and little information on these severely retarded children, simply because of the multiplicity of their handicaps. The R.N.I.B. advisers have found that very little provision is made in the schools or hospital units to cater for the vision defect if the child is grossly handicapped in other ways. Ophthalmological investigation or treatment is often neglected because the intellectual defect appears to be the major handicap. However, Mr. Michael Colborne Brown, the former Education Officer for the R.N.I.B. in London, has recently been appointed to a Research Fellowship at the Research Centre in Birmingham. Mr. Colborne Brown is to survey the needs of mentally handicapped blind children. He will investigate the provision available at present for their care and education and assess what facilities should be developed to cater for their needs in the future. The advisers in the team are happy to co-operate with him in this important and essential task.

Finally I should like to quote some comments made by the late Miss Myfanwy Williams, a psychologist and much loved educationalist in the U.K. who influenced so many teachers of the blind through her warm, friendly and sympathetic personality. In her address to the College of Teachers of the Blind, as its Chairman in 1965, Miss Williams commented: "We can see how valuable it would be if we could find more effective ways than we have at present, of discriminating between the truly defective blind child and the one who appears retarded because of unfavourable factors in his environment. We know that psychological tests given at an early age are not very reliable, and should always be interpreted in the light of the child's total situation. It follows that repeated observations of the child in his own home are likely to yield much more significant information about his possibilities, than a single assessment at a clinic. Also, by recorded observations of young blind children over a period of years we should accumulate a body of data which would enable us to be more knowledgeable about what might be expected of the young blind child at certain levels of his development.

The R.N.I.B. advisers are doing just that and although the life of an adviser/parent counsellor is almost always busy and full of variety, it is never dull!

N.B. Although the author works for the R.N.I.B., the views expressed are personal and do not necessarily represent R.N.I.B. policy.

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THE JERUSALEM CENTRE FOR COUNSELLING AND THE VISUAL REHABILITATION OF CHILDREN

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The Jerusalem Centre for Counseling and the Visual Rehabilitation of Children was established in October 1976 for the express purpose of rehabilitating children with severely impaired sight, by means of optical aids and re-education. Children up to the age of 16 are referred to the Centre from medical facilities throughout Israel for consultation and correction. The inter-disciplinary staff, directed by Professor Ilse Nawratzki, includes two ophthalmologists, an optometrist, a clinical psychologist and a social worker, all of whom have experience in dealing with children who are blind or partially sighted. The Centre is part of the Jerusalem Centre for the Prevention of Blindness, founded and directed by Professor Isaac C. Michaelson.

Close cooperation exists between the Centre and Migdal Or (Israel Lighthouse Organization) coordinating their Orientation and Mobility Training Programs with the clinical activities of the Centre. The Centre also receives support and assistance from the Jerusalem Institute for the Blind, many of whose children are patients.

In a group of 194 new patients seen during a 12 month period, causes of visual impairment were sub-divided into nine categories according to percentage-frequency:

1.	nystagmus & albinism	26%
2.	congenital cataract	17%
3.	high errors of refraction	14%
4.	retinitis pigmentosa	10%
5.	coloboma and/or microphthalmia	9%
6.	optic atrophy	5%
7.	retrolental fibroplasia	5%
8.	macular degeneration	4%
9.	miscellaneous (including retinal folds and cone anomolies)	10%

The work of the Centre can be divided into six broad areas:

1. Examination and diagnosis
2. Correction & rehabilitation
3. Follow-up and consultation with social service agencies and school authorities
4. Teaching programs for professionals with interest in low vision
5. "Visual Stimulation Program" -- a re-education program using a variable-magnification closed circuit television system for helping children read text book material whose print is too small for their visual capability
6. Genetic Counselling Services -- with the cooperation of geneticists and centre staff, genetic counseling is offered to families "at risk"; that is with history of known hereditary ocular disorders. Attention is directed toward the possibility of recognizing incompletely expressed dominant disorders and the carrier state of recessive ones.

As stated in the 1977 Progress Report of the Jerusalem Institute for the Prevention of Blindness, "Low vision in children demands a different approach compared to that of low vision in adults," and for that reason the Centre staff members give special attention and emphasis to examination, correction, rehabilitation, counseling and follow-up. A major concept in public health is primary prevention, but since there is a great deal we do not know yet about preventing birth defects or congenital disease involving the ocular system, the next best is secondary or tertiary prevention, offering early interevention, support and rehabilitation.

Every child received at the Centre undergoes an extensive series of examination and test procedures, objective and subjective, to evaluate the "total visual picture".

The staff ophthalmologist takes a full family, medical and ocular history, examines the child's eyes, determines the nature and extent of the ocular pathology, offers a diagnosis and tentative prognosis, and correlates findings, where possible, into ocular and/or systemic syndromes. The child may be referred for electrophysiological testing as well. The staff optometrist also measures visual acuity at far and near, with and without habitual correction, noting reading facility, reading distance, and any unusual head posture. The refractive condition is carefully measured for achieving best acuity at far and near. Noted also are ocular dominance and oculo-motor facility. Sight testing procedures are undertaken with standard spectacles and low vision aids, in order to elicit maximum visual capability and potential. "Clinical improvement" is noted as the gain in vision through the use of optical aids during the examination procedures.

Following diagnostic evaluation, some type of aid (Optical or non-optical) may be recommended, appropriate for the child's needs, age, understanding, visual capabilities and expectations. Aids are loaned for a three week home trial to help determine "use success". "Functional improvement" may then be noted as they gain in visual performance through the use of optical aids at home or school. Only after staff consultation and evaluation of all variables, is a visual aid ordered for the child. This aid may be a special pair of glasses, a magnifier, a sophisticated telescopic lens system, special lighting or use of a closed circuit television (CCTV). When the child receives the corrective aid, staff members work closely with him and his family to assist in the adaptation. Future appointments are scheduled at the end of every visit, and this close follow-up not only monitors the child's visual and adaptational progress, but also the state of ocular pathology. School authorities are contacted to help teachers become more aware of the child's visual condition, and when an aid should be used and when it need not be. Feedback is essential to monitor the child's educational and social progress in home and school environments, and to note how he is adapting to newly acquired visual capabilities.

In order to gain broader insights into the child's adjustment to his or her visual impairment and its correction, other members of the staff are called upon.

The staff psychologist acts as consultant in three areas: psycho-social, educational and developmental. His assessment offers a general impression of (1) the functional level of the child; (2) the extent of any psychological problems stemming from the visual impairment; (3) family acceptance of the visual anomoly; and (4) suitability and adaptability of the child to use a visual-corrective aid. The psychologist evaluates the child and his or her family, and provides, where indicated, supportive therapy. He also establishes liason between the low-vision clinic and other psychological, educational and social services. As a staff member of the Centre, he is available as a consultant for learning or psychological problems related to children with impaired sight.

The staff social worker is an integral member of the inter-disciplinary team, and works to establish close personal contacts with the child's family to clarify psycho-social condition, and to note interaction of the low vision child in home and school environments. The social worker also investigates the socio-economic status of the family, and when necessary, arranges payment for required, often costly, low vision aids. No child, regardless of ethnic background, examined at the Jerusalem Centre has ever been deprived of low vision aid because of financial circumstances.

Statistics vary regarding the number of children born each year with impaired sight. If we in Israel, give birth to nearly 100,000 children per year, and anywhere from 0.5% to 0.10% are born visually impaired, then we will have 50 to 100 new problems annually to cope with and rehabilitate. This is a heavy burden, but we hope that the Jerusalem Centre will meet that challenge and act as a model for other agencies to follow.

The Jerusalem Centre for Counseling and the Visual Rehabilitation of Children with Impaired Sight, with its clinical staff, team approach, out-reach programs, coordinated classroom-clinic efforts, and early intervention, hopes to help every child reach his maximum visual potential. This should aid him in achieving the educational goals to which he aspires, and gain the environmental independence needed to make him a more productive member of society.

A THEORETICAL MODEL FOR THE DEVELOPMENT OF VISUAL FUNCTION IN CHILDREN WHO HAVE LOW VISION

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Introduction

For many years professionals in low vision have known that there isn't a direct correspondence between pathology and visual functioning (Bishop, 1971) or between clinical measurements and visual functioning (Faye, 1976). When the World Health Organization defined low vision as "having a significant visual handicap but also havsignificant usable vision" (Faye, 1976, p.4), it implied that the ability to function visually in conjunction with a visual handicap is that which characterizes the population.

In 1980 I sought an educationally-based definition for low vision. For my dissertation on the use of optical aids, I defined the person with low vision as "one who is still severely visually impaired after correction, but who may increase visual functioning through the use of optical aids, nonoptical aids, environmental modifications and/or techniques" (Corn, 1980, p. 3). This definition led me to the questions: 1) For which children will each of the environmental modifications or other means maximize visual functioning? and 2) Can these modifications be used to elicit visual behaviors in multihandicapped children who do not use available vision?

As teachers, we seek to learn how children function with vision in general, and then we design programs to direct this learning in children who have low vision. However, since "normal" children do not require extraordinary means to develop vision and to use it for incidental learning, we also need to know which modification(s) to suggest for an individual child. As Bishop stated, "It will be seen that a large number of variable factors involved in visual function prohibit the stating of 'rules-of-thumb' for classroom adaptive measures; however, certain points of departure are possible" (Bishop, 1971, p.7).

The type of visual impairment such as low acuity or restricted fields do provide points of departure. However, these, too, do not tell the whole story. Two individuals who obtain the same clinical measurements, and possibly the same diagnosis will not be able to use their vision with the same level of efficiency.

As the ability to use vision develops after birth, it is imperative that we attempt to solve this dilemma during critical learning periods for the child. From many personal experiences with visually handicapped and multihandicapped-visually impaired children, I believe that not all children will spontaneously use their visual abilities for learning. Systematic training and/or intervention for the child and his or her environment are essential for the emergence of visually guided behaviors in some children and to maximize visual functioning in others. In describing her rationale for an educational program, Barraga (1970)* stated, "1) the development of visual ability is not innate or automatic, 2) visual ability is not determined nor can be estimated by visual acuity measurements alone, 3) visual ability and functioning is not related necessarily to the kind and degree of impairment or loss, 4) visual ability and efficiency may be learned through a sequential program of visual experiences."

The purpose of this paper is to develop a model which will demonstrate the relationships among many factors which contribute to visual function for children who have

*Note: Barraga's use of the term "visual ability" is equivalent to the author's use of the term, "visual function."

low vision. When visual function is understood, we, as teachers, may be better able to prepare children to work and play in the sighted world.

Need for the Model

Within the last decade there have been rapid changes in the field of low vision. Through the development and refinement of programs to develop efficiency in the use of low vision, children are receiving sequential instruction and learning to act upon visual stimuli. Through the advancement of technology, lenses are altering the retinal spread of near and distant images. And, in August 1980, the United States Rehabilitation Services Administration in conjunction with the American Foundation for the Blind, held a three day conference which successfully brought together these advances with the "practical and functional knowledge" of professionals (Beliveau and Smith, 1980).

Approaches to vision utilization often emphasizes the background of the interventionist. Some approaches stress the development of skills, e.g.: tracking; others provide optical aids alone while others combine training in the use of mobility techniques and counseling. As Guilford's Structure of Intellect bridges the gap between basic psychological theory and educational practice, the field of low vision seeks to bring together multiple methodologies from complimentary fields such as education, rehabilitation and social work.

A model is needed to provide a means of approaching the development of visual function. It may be used as a tool by which teachers and other professionals can communicate about their methods for teaching the use of low vision. Beliveau (1980) stated, "One of the major concepts that must be fully understood by all who attempt to train the low vision person is the profound influence of the numerous internal and external variables on daily visual performance"(p.236). Seeing the relationships among variables may help us to learn how people use low vision at different levels of efficiency.

The model which is being proposed will, hopefully, move the field a little closer to the realization that visual function is, from birth, a dynamic process and the teacher is a facilitator of visual learning in the child with low vision.

The Model

Several authors have suggested factors which contribute to visual function. Leisman (1976), while writing about learning disabilities, stated that vision is divided into three general areas: physical, physiological and psychological. Geruschat (1980) examined the functional implications of common pathologies. He found a relationship between function and specific impairments, e.g.: optic atrophy and glaucoma. Jose, Smith and Shane (1980) suggested that educators, parents and doctors should piece together the many functional information clues which a child provides in order to obtain an idea of the child's visual system.

The model for visual function takes into account the above mentioned factors. Like the Guilford model for intellect, it contains three dimensions. These dimensions are: Visual Abilities, Environmental Cues and Stored and Available Individuality. Combined, these dimensions are needed to elicit visual function in living organisms. (See figure 1.) Each dimension contains factors which operate independently in some ways (e.g.: change in each factor may be measured) and they operate interdependently in other ways (e.g.: an increase in one factor may effect change in another). So too, a change in any of the dimensions may effect changes in an individual's ability to function visually in a given situation.

All children who are born with, or who acquire, sight, will have Visual Abilities. These are the physiological aspects of vision, including: 1) Acuity, 2) Visual Fields (central and peripheral), 3) Motility of the visual apparatus, 4) Occipital lobe Functions (which contribute to fixation, fusion, motion awareness and intraocular lens shape changes) and, 5) light and color reception including tolerance for light and in the presence of color deficiency, the receptors needed for seeing variations of gray. (See figure 2)

The visual abilities of all children at birth are not complete. Acuity, for example, has not fully developed - the macula becomes mature with the presence of light. Tracking, for example, is not an available visual ability of the newborn. Bronson reviewed several researchers and came to the conclusion that "the entire Visual system may be functionally effective--albeit relatively inefficient--almost from birth" (Bronson, 1974, p. 873). Hence, the normal newborn will receive in the emerging model an arbitrary value of five for his or her visual abilities. (See figure 3) The visually impaired infant may not have the same visual abilities as one who is born fully sighted; he or she may have, for example, lower acuity due to cataracts or a smaller field due to another pathology. The visually impaired infant may receive an arbitrary value of two or three for his or her visual abilities at birth. (See figure 4)

The second dimension is Stored and Available Individuality. At birth children have many stored and available components which create individuality. (It is noted that one's visual abilities are unique to the individual and also contribute to this dimension. However, for the purposes of this model of visual functioning, the visual abilities are seen as a separate dimension.) Stored abilities include past experience upon which the individual may draw to react stimuli and/or to use for creative endeavors, e.g.: visual memory. The available abilities are those which may be utilized at any moment when a visual task is presented, e.g.: a motor response to the sight of an insect. Stored and available individuality factors include: 1) Cognition; 2) Sensory development (other than vision) and sensory integration; 3) Perceptual abilities; 4) Psychological make-up; and 5) Physical make-up, including motor development and general health. Although research is showing that some learning and sensory experiences occur before birth, as a neonate, the child's repetoire is indeed limited. "Since most persons are born with similar physical composition" (Leisman, 1976, p. 392) an arbitrary value of three will be given to all neonates other than those who are multiply handicapped. (See figure 3)

Environmental cues are signals which alert the individual (visually) to the presence and position of objects in his or her physical surroundings. The factors for this dimension include: 1) Color (hue, value and intensity); 2) Contrast (created by colors and the amount of light falling on various parts of objects or on two or more objects; 3) Time (frequency duration and speed of presentation); 4) Space (size, clutter, pattern, distance, object to object relationships, dimensions, outlines and inner detail); 5) Illumination entering the eyes (amount and type of light, luminance and reflectance of objects). At birth the infant is subject to that which may be considered a "normal" environment, one in which all organisms live and which all sighted infants, children and adults function visually. From moment to moment it is understood that the factors of environments change. A "normal" environment is considered to be one in which all necessary cues needed for visual function exist for the "normal" individual. Hence, without modifications we may say that for the purpose of the model, infants are exposed to the same environmental cues as their adult caretakers. The arbitrary value which will be assigned to the environment is 10. (See figure 3)

The contributing values for each factor along the dimensions would also be arbitrary at this stage of the development of the model. All factors will not contribute equally to visual function for all individuals, or for most individuals at all ages. As Jastrzembska (1976) stated, "Light perception and color perception seemed to provide little or no advantage in locomotor achievements in the first year. In the second, there were great advantages in prehension because the child could infer from the color patch" (p. 25).

Each dimension is required for minimal visual function. Although each dimension and/or factor may surpass the minimal needs for its contribution for visual function in a given situation, e.g.: 20/20 acuity for a task requiring only 20/70 acuity, the minimum values are those shown in the model. One sees the factors in terms of positive measures rather than as deficits. Indeed, the infant is born whole for himself or herself. Having acuity in excess of that which is needed for a particular task may allow the individual to appreciate inner detail, derive a different (not better or worse) aesthetic value from the visual experience, and/or prompt him or her to perform a new visual task.

The volume of the model for visual function increases as the child develops along the Visual Abilities and the Stored and Available Individuality dimensions. By seven months of age, the "normal" child has acquired many of the mature visual abilities, e.g.: binocular vision. He or she has also grown along the Stored and Available Individuality dimensions, and while the greatest amount of growth in this area occurs in the child's future, many new skills have been acquired. (See figure 5) At this time some of the expectations for the child include the use of depth perception and social responses to smiles from the adults in the distance.

At approximately seven years of age, the model is complete and the "normal" child can perform visually as situations arise. His or her required minimum volume has been reached. (See figure 6)

It is also important to determine whether a lack of "normal" growth in the Stored and Available Individuality dimension is directly related to the child's growth rate for visual abilities. For example, a low distance acuity may inhibit the development of certain aspects of social or motor development. On the other hand, a child's learning disabilities may be related to a perceptual ability rather than a visual ability. Too often children's learning problems are erroneously seen as a consequence of inadequate visual abilities.

The model's growth patterns may also be helpful in describing visual function for adventitiously low vision children. Although they maintain their past visual experiences, growth in new factors will be needed to return to a level of efficiency using vision. The model shows that this child is truly one who may be described as having "residual" or "remaining" vision.

The visual abilities dimension for the special child can only increase a specific amount. It is, therefore, growth in the Stored and Available Individuality dimension and manipulations of the Environmental Cues dimension upon which we depend. Teachers must see these dimensions as being somewhat pliable. By intervening, by manipulating the model, we may "make up for" the visual abilities dimension and therefore effect change in visual function! (See figure 7)

Morse saw the relationship between these two variables.

"With regard to low vision people, it is understood and must be recognized that the effectiveness of vision utilization is dependent on the overall physical and emotional health status of the individual in relationship to environmental factors, e.g.: size of print, lighting considerations, contrast, changes in the environment, and a figure-ground requirements, to name a few." (Morse, 1980, p. 454)

When manipulating the Environmental Cues one needs to be concerned with individual thresholds for each of the factors. For example, while all people require a minimum amount of illumination to function comfortably, the individual with photophobia (lower tolerance for light) will have a lower threshold for comfort. There is also a maximum level of illumination beyond which all visual function ceases to exist for all individuals. When teachers try to attract children with lights they need to be concerned about the child's level of tolerance for illumination and/or the contrast created by lights in rooms with varying amounts of background illumination.

For some children, however, creating a high contrast environment will be that which allows the child to perform desired visual tasks; increasing the amount of time to view a scene will be sufficient for others. In these situations only the environmental cues have been modified.

The relationship between emotional make-up and the willingness to accept optical aids was explored by Freundenberger and Robins. In a study, they found that those who were willing to accept environmental modification (change in size of print by means of magnification) were "neither submissive nor dominant but self accepting". (Freudenberger & Robins, 1959, p. 584) For this personality type it may be necessary to effect change in both the Stored and Available Individuality and Environmental

Cues dimensions. A third group may only require a modification of the Stored and Available Individuality dimensions. For example, a child with restricted fields may have learned head and eye scanning. However, he or she may not have the sensory integration skills which would be needed to alert him or her to the need for eye scanning. Work on sensory integration would be prescribed for this student before field expanders and/or reverse telescopic systems.

At the junction of any three factors of the three dimensions, a unit is formed, e.g.: acuity, illumination and psychological make-up. Although variations may occur for each of the factors, each unit must be present within the model for visual function to occur. (See figure 8)

The model may appear as a manifold; the volume remains the same at different stages of development (3 month volume, 7 month volume) but the external shape may change. Stress points where environmental cue maximums may be reached can be likened to spots on a child's balloon where a slight additional pressure will burst the balloon. Providing too much illumination, too bold a line or too much clutter, may cause the visual function to "break down".

Although the structure is shown on previous figures as rectangular solids prior to intervention, the internal units as well as the whole structure may not take this form in the 'normal' or the visually impaired individual. Under dim illumination, acuity may not exceed 20/70 and an individual with 'normal' motivation may function visually within the environment. A less motivated person with 20/70 acuity may not function at all. However, a low vision individual with 20/200 potential acuity and 20/400 acuity under the dim illumination and with high motivation may be able to use vision to perform tasks.

The composite structure may contain certain features about which the teacher of the visually handicapped will find of great interest. Thom (1975) describes morphogenic structures as having surfaces with cusp lines and hyperbolic umbilics. These features may alert a teacher to points of great instability or to areas where a moderate amount of change may occur with moderate intervention. In the first case, the teacher may determine that heightened contrast will by itself effect change, but in the latter case moderately increasing the "intensity" or any of the environmental cues may cause the same changes. In a discussion of color contrast, distance and illumination, Sicurella (1977) found that when the color of an object is sharply contrasted against a background, high levels of illumination and proper positioning of the object become less critical.

At times a combination of surface features will lead teachers to find emerging visual behaviors. Recently this author worked with several multiply impaired children whose mental ages were under three years. Most of the children would not or could not use their vision; eye reports stated that some had only light perception while others were known to see hand movements. The use of formal vision in the regular eye specialist's office has limited value when working with these children. In the classrooms the size of objects did not seem to effect visual function; their teachers believed they possessed more vision than was indicated in their files.

For one child, yellow tinted sunglasses were used in conjunction with raisins placed on white pieces of paper. Gradually, the papers were moved farther from the child's eyes; then the sunglasses were removed. This child ultimately retrieved raisins on a wood grain table top at 24 inches. For another child, contrast didn't seem to work even with a typical motivator for the child. However, he enjoyed the rhythms of spinning objects. His attention was maintained when a white dot was placed on the dark background of a closed circuit television. The dot was initially moved in a rhythmic pattern and his head was gently guided to follow the dot. The dot was then randomly moved and then gradually the child's head was freed. The size of the dot was reduced to approximately one-eighth inch in diameter. He was able to follow it in random pattern at approximately three inches from the screen. Both children were sent to a low vision eye specialist for a thorough examination. In the first case, the food and contrast were used to elicit visual behavior while in the second case, the child's own needs for rhythms were employed.

The model for visual function is dynamic; it continuously changes shape although the amount of need for change and the directions for change are unique to the individual and the tasks at hand. Teachers should look for easier or preferred processes which will elicit or maximize visual function. They should make decisions about when to use a bright spark of light to determine if visual function can exist for a child. They should decide whether a child should try illumination and/or magnification to see a picture in a book. The teacher may instead, darken the outlines and add color to the picture. At times the teacher will ask the child for a preference; at other times the teacher will want the child to be exposed to several methods. Still, at other times the teacher will choose to show the child how to use minimal cues to discern visual information or to alter his or her body position to take advantage of available environmental cues, e.g.: moving to the side of a street sign where the sun will illuminate it.

As all objects and environments in which a child functions cannot and should not be adapted to meet his or her needs, the child will benefit from learning to interpret cues which may go unnoticed by the normally seeing individual. Learning to read shadows, reflections or blurred images may at times permit greater transference of skills. The child for whom a yellow line is drawn on the edges of steps at home and at school may hesitate to attempt steps in the marketplace. However, if the shadows of steps are pointed out to the child, he or she will learn to function in a more "normal" environment.

A child's manifold must also show that he or she is ready to change. A child who will work visually for pieces of graham cracker or a piece of cheese, may not function visually directly after a meal. Similarly, candy presented to a child who does not like sweets may not be sufficient cause to act upon a visual stimulus. A frightening toy may also have a negative effect although tears may alert the teacher to the fact that the child "sees the toy".

One may also look at a child's manifold as a chaotic system. If a child has vision and is not using it, the introduction of intensified stimuli (e.g.: increased illumination) may only add to the chaos. However, when meaning is attributed to the stimuli, children may begin to see that acting upon a visual image will effect changes in his or her life. One little boy had not shown any interest in near objects or lights. However, after several trials when his hand was guided to "push away" a light and he received a piece of food, he continued to locate and push the light when it was presented in all quadrants of his visual field. That which inhibited his use of vision at near, was "reorganized" if even for a brief period of time.

Providing a child with the tools to maximize visual functioning will not only give the child a sense of object mastery, but he or she will develop an identity as a sighted individual. That which he or she cannot see clearly is no longer "out of control". The teacher may show a child how to manipulate a rheostat on a lamp or how to spot a barking dog with a telescopic aid. For the child with a restricted field, the teacher may help the child to solve the problem of where to sit in a large room to see all of the action. The earlier a child learns to use his or her options, he or she will desire to obtain visual information and his or her repertoire of coping strategies will increase. Although speaking of adults, Beliveau wrote that teachers should encourage the client "to effectively analyse the environment and the effect of external variables on his vision" (Beliveau, 1980, p. 237). Knowing what helps him or her to see can only add to the child's understanding of his or her vision and himself or herself.

Conclusions

It would be an ideal situation if we could program a computer to assess a child's dimensions. We could request that the computer develop an individualized program to elicit or maximize visual function. It would provide choices for the modification of environmental cues available to the child. It would also inform the teacher about such factors as cognition and emotional make-up which contribute to visual function. Children, however, are far more complex than the capabilities of today's computers; children may also be presented with an infinite number of visual tasks to perform.

Research is needed to examine individual units within the model, the relationships between units and the ways in which change in one unit may affect another. With the accumulation of information from many individuals who have low vision, researchers may piece together the practical aspects of maximizing visual function with the theoretical. Ultimately, educators, parents, and others will be able to help the young child to learn and derive pleasure from their visual abilities.

At the present time the model is a tool for educators. It can be used to demonstrate how methodologies relate to each other, how patterns of choices for individual children may evolve and how visual function may exist for children who have low vision.

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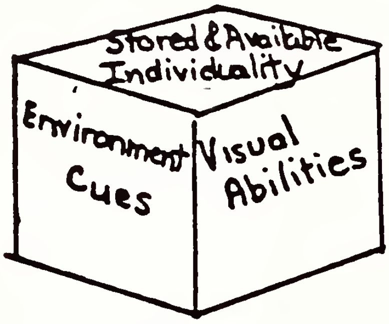

Figure 1

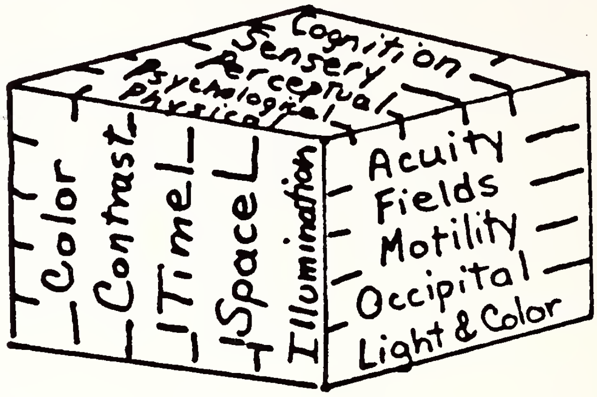

Figure 2

"Normal" Newborn

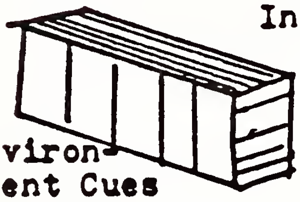

Figure 3

Visually Impaired Newborn

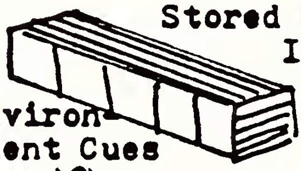

Figure 4

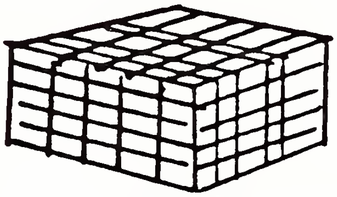

Figure 5

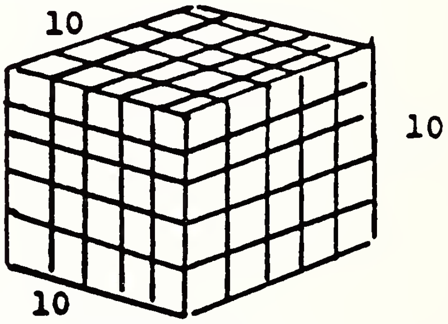

Figure 6

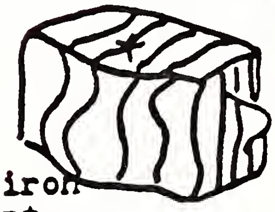

Figure 7

Flow Diagram of
the Environment

Color					
	Ph	Pe	C	S	Ps
a					
f					
m					
c					
o					

Contrast					
	Ph	Pe	C	S	Pe
a					
f					
m					
c					
o					

Time					
	Ph	Pe	C	S	Ps
a					
f					
m					
c					
o					

Illumination					
	Ph	Pe	C	S	Ps
a					
f					
m					
c					
o					

Space					
	Ph	Pe	C	S	Ps
a					
f					
m					
c					
o					

Figure 8

EARLY SKILL DEVELOPMENT

Alfred Yarnott
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It is important that young visually handicapped children develop basic skills prior to reaching the age when pre-vocational planning begins. These skills should begin to be established during the preschool years. A primary goal for all visually impaired children is to gain the ability to function independently in their environment. This independence can be taught through the development of "Life Skills", that allow a visually impaired child to gain the educational experience by utilizing the other senses that sighted peers gain visually. For optimum development, they must begin during the early years within the environment of the home, moving to the community and then to the schools. - The vision teacher is a key person to meet these needs. This teacher must have a knowledge of the young blind child and should be at ease in coordinating a program between parents and professionals to provide a program to meet the needs of the child. - Some of the skills that should be learned early and which will later relate to vocational success are: 1. Orientation and mobility, 2. Sensory Skills, 3. Self Confidence. The emphasis in this presentation centers upon the importance of teaching the visually impaired pre-schooler essential skills early in order to give them every opportunity to learn and develop their own best learning techniques to help them make it in the "mainstream" of living. Without early intervention to begin such training, we will continue to have to reteach skills which should have been learned during the early years.

INFORMAL LOW VISION ASSESSMENT FOR YOUNG CHILDREN

Denise Taylor-Hershel
(U.S.A.)

Rationale

A simple, common sense approach is taken to assess and determine a young child's functional vision. The author believes that such an approach makes the assessment more widely usable by a large number of people and provides information which is directly applicable in day-to-day experiences and instruction. Hopefully, the information gained will assist the parent or professional in arranging a child's environment for maximum development and in exploiting every opportunity that occurs in the child's daily routine. Awareness of what a child is or is not seeing should dispel any assumptions held by the parent/professional and allow her to deal more realistically and appropriately with the child. In addition, it will focus the adult's attention on the child's visual functioning as an area for constant training and development in conjuction with overall development.

Another idea to be considered is that of developing a child's visualization (mental imagery) abilities. This ability will greatly enhance a child's overall functioning. Even if the child is not seeing exactly what we are seeing, it can become useful information if she is trained to see, perceive and remember it. In addition to the usual feedback we provide the child, we must help the child understand what she is perceiving visually and how to use this information in adaptive, creative ways.

For example, a child with limited tunnel vision can only see a small part of an object. By training her to move the object systematically to see all the parts and to put those parts together to form a whole, she can develop a concept and mental image of the object.

Use

The Assessment Tool has been designed to be carried out with few materials other than a flashlight or light source and common items in the environment and typical preschool classroom. Ages, when given, are general and indicate when the skill first appears in most children. An attempt is made to avoid sexist language; thus, "the child" is used whenever possible. When personal pronouns are required, the female pronoun is used. This is not reverse sexism, but rather an attempt to "even things up a bit."

A brief list of suggested training activities is included.

Glossary

Central Vision	the ability of the eye to perceive the shape of objects in the direct line of vision
Discrimination	the ability to distinguish or see differences (between things)
Fixation	focusing the eye or eyes on an object or visual stimulus
Identification	to produce the name of
Intensity of lighting	
- high intensity	over 60 footcandles
- medium intensity	60 footcandles, normal indoor lighting
- low intensity	under 60 footcandles
Peripheral vision	the ability to perceive presence, motion or color of objects outside the direct line of vision
Recognition	to know (by some detail or appearance)

Tracking	to follow visually a moving object, or to follow the lines or contours of an object
Visual acuity	sharpness or clearness of vision, a measure of the resolving power of the eye
Visual field	the entire area which can be seen without shifting the gaze
Visual imagery	mental interpretation of retinal impulses with a likeness of a real object or person

Informal Low Vision Assessment for Young Children

Developed by Denise Taylor-Hershel

Lighting

Age	Materials Needed	Procedure	Vision Assessment	
1.		Take child outside on a sunny day. Notice what her eyes do.	Does child look for the darker areas and shade?	YES NO
2.	Artificial lights of various intensity	When working with child, experiment with various lights.	Does child prefer light of - high intensity? - medium intensity? - low intensity?	 YES NO YES NO YES NO
3.			What happens to child with sudden change of lighting?	________ ________ ________ ________
4.		In a well-lit room or on a bright day outside, have child look for shadows.	Can child find shadows?	YES NO

Distance

	Age	Materials needed	Procedure	Vision Assessment		
1.			Have familiar persons walk toward child without making any identifying sounds.	Can child identify person by looking at their face?	YES	NO
2.			Walk with child outside on sidewalk.	Can child detect differences between sidewalk and grass lines?	YES	NO
3.	12-24 months	Obstacle course (e.g. chairs, toys, boxes in path)	Ask child to walk toward you through a simple obstacle course.	Can child avoid objects in obstacle course?	YES	NO
4.		Any incline	Walk with child toward a staircase or other incline.	Can child see an upward incline before she reaches it? - a downward incline?	YES	NO
5.			Walk outside with child.	Can child see, identify or describe a house?	YES	NO

Patterns in Looking
(Things to consider and observe while child is visually exporing a motivating object.)

Age	Materials Needed	Procedure	Vision Assessment
1.			Is child using both eyes - simultaneously? YES NO - separately? YES NO
2.		Notice position of object and tilt of head.	Is child using central vision? YES NO -peripheral vision? YES NO
3.			Does child look at objects - as a whole? YES NO - OR as parts which she puts together? YES NO
4.			Is child moving head or object to look at object? ______
5.		Watch head movements.	Does child have a pattern in looking? YES NO If yes, indicate which pattern: a. (vertical and horizontal scanning) YES NO b. (horizontal scannin) YES NO c. (vertical scanning) YES NO

Motivation for Looking

Age	Materials Needed	Procedure	Vision Assessment	
1.			Does child make verbal or vocal responses while looking at objects?	YES NO

Fixation

Age	Materials Needed	Procedure	Vision Assessment	
1. 1 month	Flashlight or penlight	Present light at 15 inches.	Do pupils react to light?	YES NO
2. 1 month	Bright colored object or light.	Hold object directly in child's visual field. It may be necessary to experiment with varying distances from child.	Does child look at object? At what distance?	YES NO ________
3.	Flashlight or penlight.	Shine light on wall in a darkened room.	Does child look at spot of light?	YES NO
		Observe eyes.	Are both eyes looking at light spot?	YES NO
4. 3 months		Observe or ask parents.	Does infant or child inspect hands?	YES NO

Tracking

Age	Materials Needed	Procedure	Vision Assessment		
1. 2 months	Bright light object or light.	Once child can fixate on object or light at midline, move object slowly to the right, then slowly to the left, up and down, diagonally, circularly. Note at what point to the left or right, up or down, etc., the child stops tracking. Be sure the object is moved within the child's visual field as determined in the Fixation section, #2.	Does child track horizontally to the right?	YES	NO
			How far?		
			Horizontally to the left?	YES	NO
			How far?		
			Vertically upward?	YES	NO
			How far?		
			Vertically downward?	YES	NO
			How far?		
			Diagonally upward to right?	YES	NO
			How far?		
			Diagonally downward to left?	YES	NO
			How far?		
			Diagonally upward to left?	YES	NO
			How far?		
			Diagonally downward to right?	YES	NO
			In a circle?	YES	NO
2. 3 months	Object of high interest (e.g.: bright ball or toy truck)	Move object along a line drawn on paper, floor, etc. (Child should be seated or standing so object is moved past her rather than away from or toward her.) Observe child's eyes while she tracks object.	Can child track along straight lines?	YES	NO
			Contour lines?	YES	NO
			At what distance?		
			Does child track with eyes only, without moving her head?	YES	NO

Recognition and Identification of Objects
(Requires a background experience with objects.)

Age	Materials Needed	Procedure	Vision Assessment	
1. 12-24 months	Objects familiar to child	Place object in front of child. May have to vary the distance. Repeat with different objects.	Can child point to and/or identify object? At what distance?	YES NO ________
2. 12-24 months	Pictures of familiar objects	Show child pictures	Can child point to and/or identify picture? At what distance?	YES NO ________
3.	Outline of familiar objects	Show child outlines.	Can child identify objects? At what distance?	YES NO ________
4. 36-72 months	Solid color objects	Show child colored objects.	List the colors child can point to or identify?	________ ________ ________
5. 36-48 months	Solid black shapes cut out of heavy paper (circle, square, triangle)	Show child the cut-out shapes.	List the shapes child can point to or identify.	________ ________ ________

Motor Involvement

	Age	Materials Needed	Procedure	Vision Assessment	
A. FINE MOTOR					
1.	3-5 months	Bright objects of high interest	Hold object directly in child's visual field and within her reach.	Does child reach for object as grasp it. At what distance?	YES NO ________
2.	12-24 months	Ball		Can child throw a ball? - catch a ball?	YES NO YES NO
3.	15-18 months	Pencil, paper		Can child mark or scribble?	YES NO
4.	24-54 months			Can child draw circles and other shapes in the sand?	YES NO
5.	60-72 months	Line drawn on paper or floor		Can child move her fingers along a straight line? - Horizontally? - Vertically?	 YES NO YES NO
6.		Pitcher or container		Can child pour from a pitcher?	YES NO
B. GROSS MOTOR					
1.			Have child stand several feet away from you. Have her imitate a body movement, e.g.: you stand with hands above head and ask child to do the same. Vary distance from child. Find maximum distance at which child can see and imitate movements. Increase complexity of movements.	Types of movements child can imitate: Maximum distance at which child can see and imitate movements.	________ ________ ________ ________ ________ ________ ________

Discrimination

	Age	Materials Needed	Procedure	Vision Assessment	
A.	MATCHING				
1.	12-24 months	Pairs of objects found in environment (e.g.: shoes, mittens, cups, spoons)	Ask child to put together objects which are alike or same.	Can child match object to object?	YES NO
2.	24-36 months	Real objects or cut-out shapes of same shape and size, but varying in color	Have child match objects or shapes of the same color.	Can child match color to color?	YES NO
3.	24-36 months	Real objects or cut-out shapes of same shape and color, but varying in size	Have child match objects or shapes of the same size.	Can child match size to size?	YES NO
4.	24-36 months	Real objects or cut-out shapes of same size and color, but varying in shape	Have child match objects or shapes of the same shape.	Can child match shape to shape?	YES NO
5.		Fabric or cards with different patterns	Have child match fabric or cards with the same patterns.	Can child match pattern to pattern?	YES NO

B. DISCRIMINATION

	Age	Materials Needed	Procedure	Visual Assessment	
1.	24-36 months	Puzzles, snap-together toys.	Have child put the pieces together to make a "whole."	Can child put the pieces together?	YES NO
2.		Familiar objects and pictures	Ask child questions about the inner details of the object and pictures (e.g.: what is the boy wearing?)	Can child see the inner details?	YES NO
3.	36-48 months	Familiar pictures	Ask child questions about the actions and scenery in the picture.	Can child identify/describe the action in the pictures? Can child identify/describe details of the scenery in the pictures?	YES NO YES NO
4.	48-60 months	Objects or cut-out shapes similar in all respects but varying in size	Have child sequence the objects according to size.	Can child sequence according to seze?	YES NO
5.	48-60 months	Familiar objects (doll, etc.)	Remove a part of the object and ask child what is missing.	Can child recognize missing parts?	YES NO

Suggested Activities

Distance

A more realistic knowledge of what a child sees and at what distance will greatly aid the parent/teacher in providing appropriate visual stimulation and opportunities. Although a separate section is included, distance is considered throughout the assessment.

1. Train the child to manipulate objects to bring them into her field of vision.
2. Encourage the child to look for and identify things at a distance: a person's face, the sidewalk line, inclines, stairways, familiar landmarks (houses, fences, cars, etc.).
3. Play games in which the child has to use her vision only to find something in the room or area: another child, a favorite toy or pet, etc.
4. When working on activities in other areas (fixation, tracking, recognition and identification of objects), slowly decrease the size of the objects and/or increase the distance from the child.

Patterns in Looking

How a child visually explores gives us clues as to whether she is using central or peripheral vision, how much of the whole object she sees at once, etc. A systematic pattern in looking allows the child to recognize objects more quickly. Patterns can be learned.

1. Train the child to use a consistent pattern in looking. Reinforce an already existing tendency (e.g.: looking from left to right).
2. Teach the child to explore objects. Talk about what you are doing and what she is seeing as you explore the object in an orderly fashion.

Motivation for Looking

Whether a child uses her vision to the fullest and wants to use it is determined greatly by the satisfaction it provides her. A parent or teacher can increase the motivation for looking by helping the child to make sense out of what she is seeing, encouraging her to look, and providing visual stimuli which is interesting and within her field of vision.

Fixation

Can the child fixate her attention or look at an object in her visual field? The child must be able to visually fixate on an object before any further visual exploration is possible.

1. After the child can fixate on a stationary object, decrease the size of the object.
2. Use a television screen to encourage fixation on a bright, highly motivating light source.
3. Have the child locate large bright object in the sunlight (shiny car, etc.).
4. Basic procedures listed in the assessment may also be followed for training.

Tracking

Can the child visually follow a moving object or follow the lines or contours of an object? The tracking process yields clues to the child's field of vision and eye control. This information is important both for training purposes (extending the visual field and eye control through practice) and for instruction (presenting materials and activities which can be seen by a child within her limited visual field). In addition, if a child's range of vision is limited, she can be trained to be aware that things do exist outside this field and how to move her head in order to see them.

1. Have the child locate a light spot on the wall, then a series of fixations on the wall that will eventually lead to tracking.
2. Have the child catch the spot of light.
3. Basic procedures listed in the assessments may also be followed for training.

Recognition and Identification of Objects

It is critical that a child have maximum experiences with and explore a variety of objects with all her senses. A child with low vision can be assisted to see and recognize objects from minimal clues. It is important for the parent/teacher to know the distance at which the child can recognize an object in order to insure that these visual opportunities are within a child's field of vision. Moving beyond the object to more abstract imagery (helping the child to recognize the object in pictures and eventually the outline of a familiar object) will assist her in integrating and using her vision to a greater degree.

1. In the training activities, move the child through the stages of recognition, identification and classification.
2. Begin with three-dimensional objects, move to two-dimensional representation, then to outlines of the object.
3. Basic procedures listed in the assessment may also be followed for training.

Motor Involvement

Motor involvement, including both fine and gross motor, gives us clues as to the child's body awareness and body image. The ability to participate fully in society requires the opportunity to see and imitate normal graceful body movements and physical activity.

A. Fine Motor

1. Basic procedures listed in the assessment may also be followed for training.
2. Have the child practice ball rolling, first with sound, then without.
3. Other activities:
   - Hitting a balloon on a string.
   - Pushing an object along a black line (tape on the floor) or around a table.
   - Pounding a hammer on a work bench.
   - Copying designs on a large pegboard.

B. Gross Motor

1. Basic procedures listed in the assessment may also be followed for training.
2. Have child imitate animal movements.
3. Have child use her whole body to imitate shapes.

Discrimination

Matching requires the child to pay attention to the characteristics of objects and the direction or orientation of objects. This ability is a prerequisite for reading and higher levels of visual function.

1. Basic procedures listed in the assessment may also be followed for training.
2. Play "What's Missing" game.
3. Use flannel board activities.
4. Use mannequin with body parts removed, bead patterns with bead missing.
5. Set table and omit places, etc. Have child identify what is missing.

Lighting

The effects of lighting are critical and must be assessed and considered continually. Although a separate section is included in the assessment, lighting factors should be noted throughout the assessment.

1. Once a child's lighting requirements and sensitivities are ascertained, care should be taken to provide the maximal and appropriate lighting conditions, proper positioning of the child in relation to light to maximize uniformity of illumination and reduction of glare.

ART IDEAS FOR THE VISUALLY IMPAIRED

Betty J. Dominguez
(U.S.A.)

Art Suggestion With Visually Impaired Pre-School Students

Make dominoes out of Cheerios using index cards (3x5). Glue Cheerios on the card. Glue a piece of yarn across the middle of the card to separate the numbers. These may then be used for counting and matching exact numbers.

To help our Pre-School students with their coloring of shapes, simple objects and special objects that may pertain to holidays, etc. We outline the pictures with a brightly colored yarn or outline the form with glue and let dry. For different colors of glue, use food coloring. A couple of drops from the food coloring mixed in the glue is sufficient.

Counting books from 1-10 are made from wall-paper sample books. Cut different shapes and sizes for each number. Use the flocked design paper for easy identification of number and shapes.

To help students identify their own coat hook, cubby for crayons, pencils, etc., we use certain shapes. Example: Shannon's shape is a triangle. Also to keep the American Printing House materials neatly on the shelf, I put the picture of the object on the back of the shelf and the children then know exactly where to replace them.

Peanut Butter Play Dough

The following recipe is enough for 10 students.

2 cups powdered milk
1 cup honey
2 cups peanut butter

This easy recipe makes a playdough you can eat!
Put all ingredients in a mixing bowl and blend, first with a spoon and then with your hands. Place in refrigerator when not in use.

Modeling with Play-Dough

Help students identify colors of play-dough by coloring the play-dough with food coloring and scenting it with bottled extract. We have had good luck with the following colors: Green-Mint, Yellow-Lemon, Red-Cherry, Purple-Grape, and Orange-Orange. Using the extracts; peppermint, strawberry, banana, and vanilla are also good.

Scented Play-Dough

1 cup water
1 cup flour
½ cup salt
2 t. cream of tarter
1 T. vegetable oil
Food coloring and extracts

Mix ingredients together. Cook over low flame until it boils-thickens-cools.

Knead in extract and food coloring for 5 minutes. Separate different scents in plastic bags. Store in refrigerator.

A PROGRAM FOR DEAF/BLIND CHILDREN

Pamela Amber
(U.S.A.)

INTRODUCTION TO DEAF-BLINDNESS: HIGHLIGHTS

Purposes:

To review the methodologies, educational process, individualized special education and educational team strategies for deaf-blind students.

Highlights:

1. Population

   All students in the deaf-blind program have been tested and demonstrate auditory and/or visual deficits; some students have residual hearing and/or vision.

   Each student needs to be identified for purposes of receiving special services.

   Many students are listed on the state registry for the deaf-blind, which is a system organized to diagnose and register people who meet the deaf-blind criteria.

2. Special needs of these children

   Because these children cannot be adequately served in other special programs, their needs must be addressed in a program specifically designed to use methodologies for pupils with visual and auditory deficits.

   Ideally, the educational program should be developmentally based and sequential (see Preschool Profile).

3. The educational team

   Because the child's education is the responsibility of every person who directly serves him or her, it is necessary and desirable for all of these people to coordinate their goals and techniques in an integrated effort.

   The work of many disciplines overlaps in developing children's skills (e.g., self-help, feeding, communication, leisure skills). Hence the work of counselors, PTs, OTs, CDSs, peer tutors, and teachers must be consistent and coordinated. The multidisciplinary team's function is to design, coordinate, and monitor progress.

4. Methodologies

   No single, universal method works best for all deaf-blind children. Some methods that we have found successful are:

   a. Designing activities which incorporate several skills (e.g., communication, gross motor, self-help, etc.) in a realistic situation. This is the total child approach, appealing to as many senses (touch, taste, vision, hearing) as possible in the presentation of the program.

   b. Behavior modification, based on the idea that any behavior that is repeated is being reinforced by something. Our job is to find out what is reinforcing and use that to advantage.

   c. Approach to a deaf-blind child.

d. Environmental management: walkways cleared or carpeted; cause and effect equipment around the room; familiarizing the children with the layout of the room; encompassing the children in their environment (especially the nonambulatory pupils); exposing the children to the global environment (e.g., library, pool, office, shop, church, restaurants, grocery stores, etc.).

e. Play strategies, using Piagetian activities, total involvement, peer interaction, body involvement and awareness (total experience), problem solving/cause and effect.

f. Orientation and mobility

Orientation: establishing awareness of one's position in relation to the environment by utilizing remaining senses.

Mobility: the ability to move safely and effectively from one place to another by utilizing remaining senses.

Sighted guide

Trailing

g. Communication

Co-active movement, and total tactile communication

5. Future plans

Sheltered workshops (such as Lighthouse for the Blind); alternative living situations (e.g., group homes, foster homes); Fircrest - adult recreational program, or AEU, RASP (adult educational programs); activity centers.

6. Practical experience (if time permits)

Blindfolding, plugging ears, trailing, sighted guide

DESCRIPTION OF POSTER SESSION- AMERICAN PRINTING HOUSE FOR THE BLIND -SENSORY STIMULATION KIT-

Sheri Moore
(U.S.A.)

The sensory materials are designed to facilitate the development of basic sensory processes in young visually impaired children, with particular application for the multihandicapped child. The items enable teachers to provide a wide range of basic sensory stimulation experiences in the five sensory modalities: visual, auditory, olfactory, gustatory, and tactual. Related activities provide suggestions for using the materials with children functioning at the nonresponsive level as well as additional activity suggestions for children functioning on a preacademic developmental level.

The Sensory Stimulation Kit includes:

1. Twenty-five items within the five sensory modes.
2. Guidebook including guidelines for using the materials, additional sensory stimulation materials and activities, recommended readings, and the response level organization of the activities.
3. Activities for each item listing a suggested sequence for presentation to a child. Activity response levels include nonresponse, tolerance, and exploration-selection.
4. Developmental Overviews of each sensory modality.

A listing of the 25 kit items by modality area follows:

Visual
Flashlight with translucent and transparent color discs
Penlight with translucent and transparent color caps
Nondirectional light
Plexiglass color viewers
Mirror (nonbreakable) with stand-up base
Star Wand
Thing-mobile--interchangeable mobile
Eye patch

Auditory
Melody bells
T-shaped rattles (matched sounds)
AM Transistor radio
Drum with two drumsticks
Rhythm instruments

Tactual-Kinesthetic
Adult-sized texture mitts and child-sized texture squares
Feather duster
Tactual rollers with interchangeable heads
Assorted brushes
Temperature bags
Weighted bags (matched weights)
Rubber squeeze toys
Air blower
Vibrator with texturally distinct heads, and an irregularly cut foam pillow
Brush Machine

Olfactory
Scent cards (paired scents)
Plastic jars for smells

Gustatory
Squeeze feeder bottles

General
Teacher's guidebook
Set of activity cards

The Sensory Stimulation Kit, designed for young and multihandicapped visually impaired children, is targeted for children functioning at a birth through preacademic level. Produced by the American Printing House for the Blind, further information about it and other early childhood materials specially designed for visually handicapped children can be obtained by writing:

Marketing Department
American Printing House for the Blind, Inc.
P.O. Box 6085
Louisville, Kentucky 40206-0085
UNITED STATES OF AMERICA

A CASE STUDY OF A MOTHER AND HER DEAF-BLIND CHILD: THE DEVELOPMENT OF A MULTISENSORY COMMUNICATION SYSTEM

Mary C. Molacavage
Jill Boxerman
(U.S.A.)

The core questions emerge from this case study of a developed synchronous relationship between a mother and her deaf-blind child. First, how did the lack of auditory and visual input affect the child's linguistic, cognitive, and social-emotional development during the period from birth to 29 months of age? Second, what were the compensatory effects of a multisensory intervention program on these developmental behaviors? The multisensory program was organized to intervene during the appropriate critical phases of development. Concurrent treatments were designed and utilized to train sequential development of sensorimotor, cognitive, linguistic, and attachment-separation-individuation behaviors.

The child in this study was prematurely born. He has a severe-to-profound bilateral hearing loss and retrolental fibroplasia. At 13 months of age the child and his family were enrolled in an infant program and continued in the program for 18 months. A multisensory language program was developed and used consistently at home and in nursery school. A tactile form of Signing Exact English (Gustason, Pfetzing and Zawolkow, 1975) combined with binaural amplification were the communication channels through which the child learned. This kinesthetic sign language program was developed by the mother and teacher. A home visitation program was conducted for 18 months and the child attended nursery school for 6 months. Assessments were conducted every 6 months. Techniques utilized included: parent-teacher observations, parent interviews, and the Koontz Child Development Program. Observational data were collected on peer group interaction in nursery school.

Following the 18 month treatment program, the child displayed an expressive sign vocabulary of 25 words; he was capable of expressing two-word sentences; he verbally approximated three words. The child had significantly greater expressive language compared to similarly handicapped deaf-blind children. The study suggests that meaningful multisensory parent-child communication systems can be established and implemented to assist deaf-blind children in the development of linguistic, cognitive, and social-emotional skills.

MEXICO'S NATIONAL INSTITUTO FOR THE REHABILITATION OF BLIND AND VISUALLY IMPAIRED CHILDREN

Antonia Garcia Medina
(Mexico)

Introduction:

Mexico is a developing country and we find ourselves living in an era of renewal. We are a country constantly seeking to excel and we are constantly making every effort to improve the programs of Public Health in the areas of prevention, cures and rehabilitation. From the viewpoint of the total rehabilitation of persons with visual problems, we are one of the youngest countries involved but we are trying to excel in that area. I maintain that we will make new advances by reinforcing our programs with knowledge of the different activities being carried out by those responsible for the future of the blind and visually impaired in their individual countries.

The National Institute for the Rehabilitation of Blind and Visually Impaired Children of Mexico is under the general direction of the Rehabilitation Section of the Department of Health and Assistance.

Since its founding 26 years ago, the Institute has been the patrimony of the blind children of Mexico and it encompasses government offices, professional offices, classrooms, workshops, a "Talking Book" Library, a Museum of Taxidermy, a therapy department, a laboratory of teaching materials, a dining room, sufficient free space with gardens, a football field, gymnasium and a classroom for the Parent's school.

The primary objective of the Institute is to achieve the total rehabilitation of blind and visually impaired children in physical, psychological, educational and social areas. The Institute furnishes outside ophthalmological services for people with visual problems and provides medical/social benefits for diagnosis and treatment. The Institute accomplishes preventative work by providing early detection of visual problems of children in regular schools. Eighty to a hundred children in participating programs in sighted schools are evaluated for acuity and visual field. In cases where there are pathological findings, a total evaluation is done and treatment given.

There exists a program of Continuing Education at the university level providing instruction to different governmental departments, and these programs are supported by the personnel of the Institute. This is seen as necessary to fill out the education of doctors, psychologists, physical and occupational therapists, optometrists, teachers of special education, electroencephalagraphic technicians and nurses.

The majority of blind and visually impaired children in rehabilitation come from outpatient visits at the Institute or are referred by different Institutions that provide health services in the capital or other areas of the country.

The first interview is with a social worker, which constitutes a basic service. The social worker begins her work by studying the socioeconomic aspects of the family of each child. Based on this evaluation of living conditions, a solution is found for each case.

When the socioeconomic conditions of the family are insufficient and the child in question is unable to attend the Institute regularly, action is taken to provide a monthly subsidy to the family and school transportation for the child.

If the child lacks a home because he/she is an orphan or living in the countryside, a substitute home is provided where there are personnel prepared to carry out the function of a family. At present, we have two such homes available, one for boys and the other for girls, located in different buildings and situated a short distance from the Institute where they attend six hours daily in order to cover the required program. The school transportation takes care of their getting to the Institute. During vacations, they return to their own home as it is considered important that they have time to be with their family and the society from which they come.

The Department of Health and Assistance, the Department of Public Health, the Governments of each state and the DIF (Family Development Program) are forming the C.R.E.E. (Centers of Rehabilitation and Special Education). At present, there are 16 centers in service, one per state. In another year, 32 will be finished, resulting in benefits and greater attention for the blind, the visually impaired, or the handicapped, on a national level.

Once the socioeconomic study of each child with a visual problem that requires total rehabilitation is completed, the social worker is the liaison between the doctors, the different specialist, the teachers of Special Education and the family. In order to integrate the clinical paperwork, an evaluation is done by each one of the specialists.

1. Ophthalmology, together with the visual diagnosis, is the basis for determining the scholastic and therapeutic program required as well as the type of visual aids (in case of visual impairments) or prosthesis that would improve the appearance of the blind person.
2. The Pediatrician will be in charge of growth and development, immunizations and nutrition of the child. He works in direct coordination with the General Practitioner.
3. In Rehabilitation Medicine, the medical specialist is the person to detect additional handicaps and initiate the programs of physical, occupational or language therapy which each child may require, the goal being physical and personal adjustment. At the same time, the medical specialist will program workshops according to the ability of each student. Therapy is covered by physical, occupational and language therapists together with orientation and mobility instructors, as well as Physical Education and sports teachers since the blind participate in soccer, swimming, gymnastics and athletics. The medical specialist keeps an account of the children who will attend Orientation and Mobility instruction and supervises the program until the child is able to display self-sufficiency.
4. The Neurologist, with the aid of the electroencephalogram, will prescribe the appropriate medication when neurological pathology exists.
5. The Psychiatrist supervises the mental health program of the child and the family, through individual, group or family therapy. In the latter case of family therapy, all the family is brought together. The study which is made is to discover what member or members of the family are exerting a negative effect.
6. The Psychologist coordinates very closely with all the specialists for the purpose of knowing in detail the performance of the child in the different activities in which he is programmed. The goal is to create an appropriate psychological climate in order to permit the child's participation without any behavior problems or aggressiveness and avoiding depression and dissatisfaction. On the basis of clinical evaluation; appropriate therapy is programmed in each case. The Medical Specialists and Psychologists working in family therapy are interested in creating the most positive family nucleus possible.
7. The Dentist will provide a dental evaluation, prevention and treatment, without overlooking advice to the family.
8. When the child meets the requirements and is school age, the psycho-pedagogical evaluation of the teacher of Special Education will determine the school grade in which the child should be placed.

In the scholastic area, preschool and primary education is provided in programs of the Department of Public Education, basing the development of that education on the system of reading and written braille and special teaching devices relying on the remaining senses. Mathematics, frames with numbers in relief, abacus, relief maps, talking books, braille texts, drawings in relief, etc.

Music activities, Physical Education, Manual Skills and academic performance directed toward rehabilitation are varied, and complement the educational program. All the preceding has the sole objective that the child acquire the necessary basics for his rapid integration into a regular school system. Itinerant teachers will closely follow progress, and will orient the family and provide solutions to any problems that should arise.

It is of primary concern when one is engaged in the rehabilitation of children with visual impairments to initiate and carry out consistent guidance in the early months of life. The program must consider the different psychomotor stages of the child so that the child will eventually be able to function at appropriate age level.

The objectives to have in mind for this age are:

1. Early ophthalmological diagnosis of the amount of vision the child has in order to indicate the program to follow. Provide adequate treatment to avoid complications.
2. A study of the family/child relations to detect emotional problems which may affect the psychomotor development.
3. Active participation by the mother within the program, coordinated with instructions to be carried out within the home.

The recommended program of rehabilitation of the visually impaired infant is founded on the evaluations of the various specialists of a multidisciplinary team.

1. The Social Worker who evaluates the social-ecomomic situation of the family and directs appropriate support service to the family.
   A. A foster home in case of a foreign child
   B. A subsidized home in cases where a scholarship is needed to facilitate attendance at the Institute
2. The Ophthalmologist who makes the visual diagnosis determines if the following are needed:
   A. Surgery
   B. Medical Treatment
   C. Visual Aids
   Discovers the amount of vision, and based on the diagnosis, lays the foundation for the individual program to follow.
3. The pediatrician detects any changes such as:
   A. Neurological damage
   B. Organic problems
   C. Postural deviations
   Gives attention to preventive medicine by providing vaccinations and prescribed curative medicine. When there exists a pathological deterioration, the following may be needed:
4. Neurology
5. Psychiatry
6. Psychology
7. Electroencephalography

These are the specialists who coordinate the procedures to achieve good mental health, keeping in mind the presence of organic or psychological problems which may cause alterations in conduct, irritability or aggressive behavior. Family therapy can be programmed in order to provide emotional support to the child within the family nucleus.

8. Rehabilitation Medicine
   The physician will detect any changes in the following:
   A. the Muscular and Skeletal System
   B. Motor Development
   C. Personal Adjustment
   D. Language
   According to the physician's evaluation, recommendations will be made for physical, occupational or language therapy.
9. Children's Dentistry
   A preventative and curative program

Initiating activities with children at an early age has the goal of preparing them physically, psychologically and socially for success in school.

The extent of the results depends on the participation of the family.

THE ROLE OF INTERDISCIPLINARY COOPERATION IN A COUNSELLING SERVICE FOR PARENTS OF VISUALLY HANDICAPPED CHILDREN IN STRATHCLYDE REGION, SCOTLAND

Marianna Buultjens
(Scotland)

In May 1978 the Warnock Report (1) was published. This was the result of an enquiry into the special educational needs of handicapped children and young people in the U.K. The impetus for the establishment of the post of Parent Counsellor for the Visually Handicapped in Strathclyde Region, Scotland, came from the recommendation of this report. The need for someone to be involved with the families fo the pre-school visually impaired had long been felt in this Region with it two and a half million inhabitants, half the population of Scotland, and before my appointment as Parent Counsellor, one of the Royal National Institute for the Blind Education Advisors had paid frequent visits. Referrals since my appointment in October, 1978, to date, April, 1981, have totalled 220 children, 135 of whom were under 7 years at time of referral. Chapter 5, sec.39 of the Warnock Report provides a handy summary of the aims of a counselling service.

(i) to assess children's educational needs on the basis of trained observation;
(ii) to work with parents towards an educational programme for their child in the light of his assessed needs.
(iii) to maintain contact with other professionals in the various services concerned with meeting the needs of young children with disabilities........

It is the last of these aims, no.(iii), which I wish to consider by:

1. describing three ways in which it is exemplified in my work;
2. briefly commenting on the merits of such a system;
3. using three simplified case studies, (hand-out or O.H.P.) as illustrations.

1.(a) Referrals from local Medical, Social Work and Education Services

The theme of the special issue of the "New Internationalist" for the international year of the disabled was: "The key to low-cost but dramatic improvements in the lives of the majority of the disabled lies in releasing the care and support which is latent in the family and the community". The words "low-cost" may be true only for the developing countries, but the rest of the sentence must have world-wide application. Because of the large number of children with whom I am involved my visits to child and familty are less frequent than I would wish. For children under 2 years of age my aim is every 6 to 8 weeks, but even this is sometimes impossible. Although this continues to be a source of feelings of personal inadequacy, I have come to appreciate that local based support is the best and that the "Named Person" (Warnock ch. 5, sec.12-20) or main source of support for the family, may well be the local Health Visitor, (a trained nurse attached to a Health Centre or General Practice), a Social Worker, or sometimes an Educational Psychologist. Through joint visits, reports and discussions, the local professionals are kept informed of my views and suggestions for child and family. They reinforce what has been said, continue to provide the appropriate support and contact me between visits for any crisis or emergency. A recent development along these lines has been the appointment of three local based Itinerant Teachers for visually handicapped children, who will take over my role in their area, or work together with me.

1.(b) Referrals from a hospital-based assessment unit

Children suspected of having a neurological impairment are referred to this unit from all over the West of Scotland. They are seen by a Consultant Paediatrician, who is a specialist in Developmental Medicine and Neurological Handicap, and any other appropriate medical specialist e.g., Consultant Ophthalmologist, working together as a team with a Clinical Psychologist, Physiotherapist, Occupational Therapist, Speech Therapist, etc. As a result of the medical diagnosis and through programmes worked out by the therapists it is hoped the parents will be led to an understanding of the child's condition and needs, and thereby a realistic acceptance of the child within the family. If the child has a visual disability the parents may be asked if they wish to have a visit from the Parent Counsellor for Visual Handicap. If so, the paediatrician will send me a written request to see the child, together with relevant information. My role is to observe the child's visual functioning in the home, provide appropriate advice on management and stimulation and report on these to the Assessment unit. I will also inform the local education, medical and psychological services. Depending on the child's needs, and local pre-school educational provision, my involvement may be short or long-term.

1.(c) Continued involvement after school placement

The pupils of the school in which I am based, Kelvin School for the Partially Sighted, Glasgow, have their progress and needs monitored by a "Case Management Programme", initiated and administered by the Community Child Health Service. This is a systematic review which consists of the medical paramedical and educational personnel connected with the school. They must report on their involvement with child and family and their recent reassessments e.g., psychological assessment. Areas of need will be highlighted, specific aims decided upon, and individual members of the team will undertake to carry out certain functions e.g., Speech Therapists to provide programme. If the child was known to me before starting nursery or school, I form part of this team.

2. The merits or advantages of such inter-disciplinary systems as the three I have described can be summarized thus:

(i) The parents benefit from the support of the combined services and expertise of a wide range of specialists. They are given hope in the future and confidence in the management of their child, and their feelings of helplessness and isolation are diminished.

(ii) The professionals benefit from the support of their co-workers, their horizons are widened and their wits and application sharpened by accountability.

The onus for the success of such a system, (taking for granted the goodwill of the parents), rests on the professionals concerned. Its occasional breakdown or failure will cause problems and heartache, but never on the scale of those that would arise in the absence of such a service delivery.

3. Consideration of case studies.

Reference

(1) Special Educational Needs.
Report of the Committee of Enquiry into the Education of Handicapped Children and Young People. Chairman: Mrs. M.H. Warnock.H.M.S.O. 1978.

Case Studies

These 3 case studies are meant to illustrate Chapter 5, sec. 39, no. iv of the Warnock Report[1] which sets out one of the aims of a counselling service as being: "to maintain contact with other professionals in the various services concerned with meeting the needs of young children with disabilities..."

They are chosen from a current caseload of 220 children, 135 of whom are under 7 years of age.

They have been simplified and do not deal in detail with such areas as the emotional reaction of families, interaction with siblings, etc.

1. Special Educational Needs.
Report of the Committee of Enquiry into the Education of Handicapped Children and Young People.Chairman Mrs.M.H. Warnock.H.M.S.O.1978.

(a) Referral from local Social Work Department

John. Date of Birth February '80. Only child of very young parents. Premature; secondary glaucoma; detached retina; no useful vision; hospitalized until June '80. Referred by area Social Worker for the Blind, though on case load of local generic social worker.

All but one of the home visits were made with the Social Worker who visits the home sometimes on a weekly basis. Health Visitor also involved.

Aug.'80. Appeared to be lack of parent/child bonding. John being left upstairs to sleep most of the day. Discussed importance of having him where he can hear voices and activity. Stressed importance of physical contact through cuddling and play. Sent report to relevant agencies.

Sept.'80. Father unemployed. Mother now more positive about John. Discussed encouraging use of hands and talking a lot to him.

Nov.'80. Concentrated on ways of encouraging head control and sitting balance. Reported to Case Conference.

Jan.'81. Almost sitting unsupported. Playing with toys on tray. Pushing self backwards in babywalker. Discussed importance of encouraging John to respond vocally.

Feb.'81. Sitting unsupported but with head held down. Discussion of how to encourage good posture and mobility in general. Left written report for father who was not present. Sent report to social worker.

March'81. Family off on holiday.

Next visit June'81.

Conclusion. Due to holidays, (the family's and my own) and pressure of work, there was a long gap in my visits. In May I heard from 2 independent sources that the parents were feeling at a loss and needing help urgently. When I contacted the social worker she was not aware of the urgency.

The 3 months gap in visits had seemed short to me but long to the parents.

(b) Referral from a hospital-based Assessment Unit

Carol. Date of Birth March '79. Second child in family. Older brother. Bilateral microphthalmos, large coloboma of retina and choroid in each eye. Some spasticity in legs. Referred by Paediatrician in Aug.'79, at age of 5 months.

The following is a record of my home visits only, and does not list frequent appointments to the Assessment Unit, nor regular home visiting of Health Visitor, and later the hospital-based Advisor to Parents of the Deaf.

Aug.'79. Carol responded to light and shiny paper. Discussion with mother and grandmother about the likely effect of visual handicap and ways to encourage visual response. Report to paediatrician.

Oct.'79. Improved head control and some visually-evoked reaching. Possibility of hearing loss. Series of tests arranged at hospital.

Jan.'80. Report from Assessment Unit: Carol slightly regressed, more introverted. To be seen regularly by physio and occupational therapists.

March '80. Hearing loss confirmed, but extent not assessed. Parents believe she can hear. Suggestions now geared more to deaf/blind situation.

April '80. Paediatrician arranges meeting at which she discusses with Advisor to Parents of the Deaf and myself our future joint involvement.

May '80. Joint visit. Father present. New ear moulds and hearing aid fitted. Carol still withdrawing hands from contact. Appears to have no lower field of vision.

Dec. '80. Joint visit. Discussion of self help skills and initiation of a programme of total communication starting with meal times.

Jan. '81. Local physiotherapy arranged.

Feb. '81. Joint visit. Father present. Carol is given Phonic ear. Discussion of how to incorporate its use into self help skills. Parents ask for educational placement for Carol in a deaf/blind unit.

May '81. Joint visit. Positive change in Carol: responsing vocally to voices; moving on floor to get toys; reaching on sound and occasionally visual cues. Mother no longer wishes immediate educational placement but weekly support from a specialist teacher.

May '81. Meeting with Advisor to Parents of Deaf and local educational psychologist to discuss immediate and future educational provision. Psychologist will meet family in June.

Conclusion. Parents are very much aware of difficulties of dual handicap. Mother needs a lot of support in day-to-day coping. Would prefer regular help from specialist in deaf/blind education rather than two people from separate fields. This is, at present, unavailable locally.

(c) Continued involvement after school placement

Peter. Date of Birth Feb. '76. First child in family. Single blind parent. Aniridia and gross nystagmus. Being educated as a partially sighted child.

Home management has posed problems in the past and even more since birth of second, normally seeing child, in May '80. Little reinforcement of classroom skills at home. Family receives continued support from Community Child Health Service and Social Work Department.

Oct. '80. Meeting at Assessment Clinic to see mother with Clinical Medical Officer (coordinator of Child Health Services) and Speech Therapist. Aim: to discuss ways of encouraging language skills at home.

Dec. '80. Case Management Meeting. Reports from all present and decisions on future involvement.

Dec. '80. Home visit to encourage continued use of nursery rhyme and story cassettes provided.

Jan. '81. Provisions of children's books in braille for parent to read to Peter.

3rd. April '81. Request from mother to visit home. Behaviour problems arising from natural high spirits and lack of friends to play with. Peter is not allowed out to play with local children. Mother wishing residential placement for Peter. Crisis situation.

12th. April '81. Temporary foster home arranged by Social Work Department.

24th. April '81. Meeting of relevant professionals to consider mother's request for residential placement.

29th. April '81. Joint visit with social worker to again discuss practical solutions of behaviour problems and residential placement available.

Conclusion: Situation unresolved at present.

PROJECT RUN
A UNIVERSITY AFFILIATED TRAINING AND SERVICE PROGRAM FOR SEVERELY/PROFOUNDLY MULTIPLY HANDICAPPED PRESCHOOL CHILDREN

Dr. James Mann
(U.S.A.)

Providing pre-school services to handicapped children is a relatively new phenomenon in Mississippi. Public schools are just now beginning to offer such services. However, there exists one such model program in North Mississippi called Project RUN, RUN standing for Reaching Us Now.

Project RUN is a model demonstration program serving multiply handicapped children from birth to eight years of age. The program began in 1976 under funding provided by the United States Department of Education, Office of Special Education and Rehabilitation (formerly the Bureau of Education for the Handicapped).

Project RUN is located on the campus of the North Mississippi Retardation Center, a university affiliated facility, only a mile from the main campus of the University of Mississippi in Oxford, Mississippi. The Center began operations in 1973 and is one of the most modern research, training, and service facilities for developmentally disabled children in the United States.

An initial and continuing goal of Project RUN is to prevent institutionalization or to facilitate deinstitutionalization of severely/profoundly handicapped children. This is accomplished, in part, by increasing the independent functioning of the children as a result of early intervention and training for the parents. Project RUN personnel feels that early intervention is of utmost importance in promoting the optimal development of handicapped children.

Another basic goal is to tap interdisciplinary expertise from generically trained professionals equipped with broad knowledge and experience and to maximize their value in research and training efforts primarily within the framework of their own professional identities. In addition, Project RUN serves as a research and training program for students at the University of Mississippi in various disciplines. This is readily accomplished by pulling together the already existing elements at the University of Mississippi in order to capitalize upon current resources available for the research and training expertise essential for the solution of complex health, education, and social problems of preschool handicapped children.

Reflections of the Needs of Universities and Service Agencies

We feel it is necessary to provide university students with real practicum and research experience. We suggest that universities become more involved in the existing service system so that university students learn the necessary skills to function effectively in real life programs. There should be a blending of university-based knowledge with the daily working experience of service programs. Achieving such a blend on the part of a university training program will put manpower training in phase with manpower needs.

We also recommend that universities strengthen their relationship with service systems to assure that the training, research, and service goals of the universities are consistent with the major service agencies' needs and the needs of the handicapped population. Further, we advise universities to work closely with service agencies in planning for improved services and assessing in meeting manpower shortages. This will allow universities to develop appropriate training curricula and to take a major role in the development of needed programs of service agencies. Symbiotic relationships between universities and service agencies need to emerge from the research, training, and service expertise of the universities and service agencies.

Diagnostic/Therapeutic Treatment Approach

Project RUN offers a diagnostic/therapeutic treatment program for children in North Mississippi who range in age from 0-8 and who have been diagnosed as being multiply handicapped. Some of the diagnosed handicapped conditions of RUN's students include visual impairment, mental retardation, cerebral palsy, hydrocephaly, microcephaly, and Down's Syndrome. The children reside in the surrounding twenty-three county area that has a total population base of approximately seven hundred thousand persons. Referrals for residential children are processed through the Center's interdisciplinary team and referrals for community children are processed through the Center's social services department.

Project RUN's utilization of a diagnostic/therapeutic treatment approach for program planning and implementation enlists the aid of the Center staff and parents. Comprehensive diagnostic evaluations are conducted by Center interdisciplinary staff prior to each child's admittance to the program and on a continuing basis for program modifications and recommendations. These evaluations provide the program special educator and parents with an overall view of the child's limitations and capabilities. They also provide the teacher with prerequisite information necessary for determining the support staff needed for designing each child's program.

Evaluations are continued when the child enters the program. Informal assessments through teacher observations and parental information are collected during the first two weeks. During the third week, a formal assessment is conducted using an early education assessment/curriculum for determining specific skills which exist and those which need to be developed.

Following the comprehensive evaluation process, the special educator, parent, interdisciplinary team and support staff establish priorities where significant deficits exist and the Individual Education Plan (IEP) is developed.

The child then receives treatment as indicated by the programmatic needs. During treatment the behavior modification principles of reinforcement and prompting cues are utilized for eliciting correct responses. One-to-one programming, which is in congruence with behavior modification principles, is utilized for program implementation. The child receives this treatment for one and one half hours, three days per week. These programmatic efforts are then carried over into the home via the parents of the community-based children. This facilitates daily programming in addition to the intensive therapy time.

Direct Services To Children

The services provided a child in Project RUN are as follows:

a. Early Education: An individual education program is provided for each child based on an early education assessment/curriculum, previous diagnostic evaluations, and any additional information pertaining to all related disciplines involved in serving young handicapped children. The main objective of the special educator is to promote optimal development in each child. This involves providing increased stimulation to the child in order to supply exposure to the developmental skills necessary in promoting development. Moreover, the special educator incorporates an interdisciplinary approach in serving all children so that development is obtained in all areas of concern.

b. Communication: The communication program is concerned with the development of receptive and expressive language skills emphasizing speech and augmentative communicative systems. A majority of the children in Project RUN are individuals for whom speech is temporarily or permanently inadequate to meet all of his or her communication needs and whose inability is not due primarily to a hearing impairment. The augmentative communication system is designed and utilized in such a manner as to supplement whatever vocal skills the individual may possess. The augmentative communication system includes: 1) a communication technique; 2) a symbol set or system, i.e., Blissymbols; and 3) communication/interaction behavior. The combined use of these techniques and systems have been found to be effective in augmenting residual speech skills and providing communication access. The speech-language pathologist utilizes the following instruments that assess speech, language, and language-related behaviors: Communication Assessment for the Non-Verbal Pupil (a working paper), a Denver Developmental Screening Test, Goldman-Fristoe Test of Articulation, Environmental Prelanguage Battery, Environmental Language Inventory, Miller-Yoder Test of Grammatical Comprehension, Photo Articulation Test, Prelinguistic Assessment, and Sequenced Inventory of Communication Development. From these assessments of informal observations communication goals are established for each child's IEP, emphasizing speech and augmentative communication systems where deemed appropriate.

c. Therapeutic Feeding: A majority of the children in Project RUN require extensive assistance and/or supervision in order to perform basic food consumption actions. Therefore, a therapeutic feeding program is offered which stresses proper positioning, feeding techniques, and adaptive equipment for each child. The goal is for the development and acquisition of functional eating skills in relation to the physical and motoric involvement of each child. The results from this evaluation are used to develop an individual IEP for the child.

d. Physical Therapy: The general goals of the physical therapist are: 1) to assist the child in developing his motor and perceptual potential; 2) to prevent or control deformities; and 3) to provide the child with as many sensorimotor experiences as possible in preparation for living and learning. The children in Project RUN are evaluated by the Center's physical therapist who then designs an appropriate physical therapy program based on a gross motor evaluation and any additional specific therapy goals depending on the child's physical condition. This program is carried out by the RUN physical therapist aide with supervision by the physical therapist.

Direct Services to Parents

The following services are provided to parents in Project RUN:

a. Classroom Observation: By offering classroom observation, parents become aware of techniques being used with their child in his or her programming in communication, special education, and physical therapy. The staff is on hand to answer any questions the parents may have regarding the child's program. It is at this time that parents sometimes provide information about the child that is beneficial to the staff. Thus, classroom observation offers support to the parents along with involvement and information.

b. Classroom Participation: Involving parents in the classroom is very beneficial when striving to provide support, information, and participation. The parents are no longer just observing, but they are also given the opportunity to learn and practice techniques with their child at Project RUN. This enables the parents to incorporate new techniques into home practice thus improving the parents' teaching skills.

c. Parent Training: Providing instruction to parents on techniques and procedures to utilize with their own child at home provides continuity in programming between school and home. Specific instructions about the activity and recording procedures are given to the parent. The staff members demonstrate the techniques and procedures associated with each activity for the parents. The parents are then asked to demonstrate that activity. The staff member gives immediate feedback to the parents and answers any questions the parents may have. The parents are then asked to record their child's actions and return this data. This additional training provides, increased stimulation for the children and promotes parent-child interaction.

d. Parent Conference: Conferences can help parents to understand their child better, become more aware of available community resources, and receive support. Parents sometimes have a need to talk with teachers in order to seek help from them in coping with the varied problems of raising a handicapped child. In this respect conferences can offer parents ways of finding answers to their own individual problems. Having someone to talk to is extremely important for these parents. Parent conferences also give the teachers a chance to share with the parents the child's progress. Specific objectives can be discussed and suggestions made for reinforcers, materials to be used at home, etc. Whatever the purpose of a parent conference, it is always a good activity to provide support and information exchange.

e. Other Services: Referral information, supplementary services, and limited counseling are available to the parents through our project. Parents may need help in obtaining financial assistance in purchasing adaptive equipment or information on hospitals or centers that provide appropriate services for their children.

Staff

A special education teacher (who also serves as each child's case manager), a teacher aide, a parent educator, and a physical therapist are responsible for carrying out the treatment program. However, the treatment program is closely interwoven and integrated with other support disciplines. Individualized (highly specialized) programs by various disciplines are incorporated into the child's program in order to address the child's developmental deficits and integration of the child's internal sensory system.

The involvement of the Center's interdisciplinary staff in formulating and implementing the treatment program affects the programming in the following ways:

1. The physical therapist provides on-going evaluation for each child in the gross motor area and provides a program plan and training for the physical therapist aide for carrying out the program. The physical therapist also provides information to other program staff on positioning for intervention.
2. The speech-language pathologist provides services similar to the physical therapist in the areas of language development, pre-speech, and communication.
3. If needed, the psychologist provides consultation concerning the behavior modification techniques to attain the desired educational responses to specific objectives.
4. If needed, the dietitian provides consultation as to the appropriateness of certain kinds of food for each child. This can influence snacks, reinforcement items, etc. that the special educator uses.
5. As appropriate, medical personnel provide information on any medical restrictions prescribed for the child.

The program is in operation from 7:30 a.m. - 4:00 p.m., Monday through Friday, twelve months of the year. Demonstrations of the techniques and procedures are an on-going process during operational hours of the Center.

University Student Trainees

Students at the University of Mississippi who plan to work with preschool handicapped children must be adequately prepared to work with a variety of handicapping conditions of varying degrees. The training at the university level is designed with an interdisciplinary perspective to thoroughly acquaint students with the broad range of disciplines that serve young exceptional children. It is appropriate that students be familiar with the various professional disciplines that offer services to the handicapped and their families. Within the University environment and through the Center it is possible to expose special education trainees to such disciplines as medicine, psychology, social work, and speech and hearing and the contributions each has to make in developing habilitation plans for the handicapped.

The following is a description of the competency components to be completed by students at the University of Mississippi. Courses and practica have been developed which will provide academic and practical experience needed to develop knowledge and skills in education and research in the area of early childhood special education according to various student needs. The program advisor guides the student in selecting appropriate courses, practica, and seminars within the various competency areas.

COMPETENCY 1.0 - KNOWLEDGE OF LEARNER CHARACTERISTICS

1.1 An understanding of normal growth characteristics and implications for learning.

1.2 An understanding of characteristics of exceptionality and the implication of deviance.
1.3 Recognition of commonalities among exceptional children.
1.4 Knowledge of comparisons between exceptional children and children with normal development.
1.5 Awareness of various aspects of deviations in early growth and development (medical, psychological, social, motor performance, intellectual).

COMPETENCY 2.0 - ASSESSMENT AND EVALUATION OF AND FOR INSTRUCTION

The student will demonstrate:

2.1 An understanding of purposes and methods of assessment and evaluation (physical-motor, communication, social, etc.).
2.2 Selection of formal assessment devices.
2.3 Construction of informal instruments.
2.4 Diagnosis of strengths and pupil difficulties from assessment data.
2.5 The teaching of self-evaluation and the involvement of evaluation as a part of the learning process.
2.6 Application of assessment and evaluation skills in classroom or applied settings.

COMPETENCY 3.0 - COMMUNICATION AND INTERACTION SKILLS

The student will demonstrate:

3.1 Communicative interaction skills with children.
3.2 Communicative interaction skills between students and teachers.
3.3 Communicative interaction skills for conferring with other school personnel from other disciplines: educational supervisors, pediatricians, county and community agencies.
3.4 Communicative interaction skills in consultation with parents.
3.5 Ability to represent community or public school programs to other groups or agencies.

COMPETENCY 4.0 - CONTENT KNOWLEDGE OF CURRICULUM

The student will demonstrate the following skills for ages ranging from toddlers to primary-age children:

4.1 Development of instruction in teaching personal self-care and self-help skills, and independent functioning (e.g., feeding, toileting, motor, prelinguistic).
4.2 Development of instruction in teaching play and leisure time skills.
4.3 Development of instruction in teaching readiness skills required for language, reading, arithmetic and work.
4.4 Development of instruction in the teaching of skills required for the child to interact with adults and members of family.
4.5 Development of instruction in teaching mobility in applied and community settings.

COMPETENCY 5.0 - PROGRAM PLANNING AND INSTRUCTION

The student will demonstrate his or her skills in:

5.1 Selecting specific goals, aims, and objectives.
5.2 Selecting instructional strategies based on assessment.
5.3 Selecting and developing appropriate materials for learning activities.
5.4 Collaborating with others in planning.
5.5 Developing classroom procedures and routines.
5.6 Evaluating instruction and instructional design.
5.7 Establishing rapport and providing optimum learning atmosphere.
5.8 Motivating, reinforcing students, and providing feedback.
5.9 Conducting discussions and small group activities.
5.10 Individualizing instruction and conducting individualized activities.
5.11 Presenting information and giving directions to students and others.

5.12 Using deductive thinking, inductive thinking, and problem solving approaches.
5.13 Using appropriate question and responding techniques.
5.14 Using audio-visual equipment and aids.
5.15 Appropriate utilization of alternative models in providing special education services.

COMPETENCY 6.0 - ADMINISTRATIVE PROCEDURES

The student will demonstrate his or her skill in:

6.1 Directing classroom personnel, e.g., aides.
6.2 Arranging physical environments.
6.3 Establishing classroom procedures and routines.
6.4 Organizing material
6.5 Maintaining records.
6.6 Following administrative procedures withing the school system.

COMPETENCY 7.0 - RESEARCH KNOWLEDGE AND SKILLS

The student will demonstrate the:

7.1 Ability to read and understand major research studies in special and early childhood education.
7.2 Ability to apply research findings to daily work.
7.3 Ability to synthesize research findings to state what is known and what is yet to be clarified in relation to specific problem areas.
7.4 Ability to evaluate a research design described in the literature in terms of appropriateness for the problem under investigation.
7.5 Ability to design action research in accountability for self and program.
7.6 Ability to design action research and to carry it out in the field.

COMPETENCY 8.0 - INDEPENDENT PROFESSIONAL DEVELOPMENT

The student will:

8.1 Continually update his or her information within the field.
8.2 Continually update his or her information regarding instructional techniques and strategies; he or she should routinely identify, assess, and utilize new (or different) strategies.
8.3 Use a variety of techniques for growth including: reading of books and periodicals, attending seminars and meetings of professional organizations, and interacting with colleagues.
8.4 Coordinate professional growth with that of field-based personnel through participation in local staff development activities.
8.5 Exercise responsibility toward the profession by participating at the local or state level.

In summary, the University of Mississippi is attempting to systematically train our students through an interdisciplinary approach to the complex problems of handicapping problems of young children and to provide this professional training in a service setting at the North Mississippi Retardation Center regarded as a model of practice and management. There will be continued effort to strive for improvement as we address the research, training and service needs to our state's handicapped preschool children.

MEDIATION-EARLY-CARE-WURZBURG

Matthias Zeschnitz
(West Germany)

I would like to present you with a report on the model-project "Mediation-Early-Care-Wurzburg" which promotes the developmental progress of multiply-handicapped children from birth to eight.

It is important to know a few things in advance:

1. Under "Mediation Early Care" we mean that the parents are the main supporters in the advancement of the child.
2. The model-project refers to the state of Bavaria and encompasses all the multiply-handicapped blind children there. Their number is approximately 70.
3. In order to make our visits as economical as possible and in order to avoid one-way trips of more than 60 miles, we decided to build up out-stations in five centrally located Bavarian cities.
4. Each of these extension sites is manned with a special education assistant and a psychologist. They take care of 10 to 15 families each week, that means that two to three visits take place every day.
5. As a rule the family will be visited weekly, a visit lasts usually 90 minutes, but if necessary it can be extended quite a bit longer.
6. The children in our care, as previously mentioned are all multiply-handicapped. In most cases, the visual handicap is accompanied with a mental handicap or at least a massive developmental retardation.

About one third of the children have seizures and, two thirds have a physical handicap. Approximately one third of the children were at one time considered not to be capable of learning. Our project does not however have any criterion for exclusion or any norms of minimal achievement.

The parents come from all social classes. We do not make any selection in advance. The cooperative work with the parents is the essential aspect of our activities.

The basic idea of our work is, that each child can be most effectively promoted through a close individual in his familiar environment.

The parents are together with the child daily. Furthermore the most effective possibilities of reinforcement are generally at their disposal. Their potential to influence the child is, at least theoretically, much greater than ours.

When we use the term "parents as co-therapists" for this approach, we underestimate the true value which the parents really have in all phases of this work. Their cooperation does not only have a supporting character for interventions which have been initiated, but the parents also remain the determining factors for the educational and therapeutic processes during the entire procedure.

Besides the emphasis on parental work, our procedure varies in other aspects from the traditional ones. A comparable large amount of time is given to the derivation and documentation of all pedagogic and therapeutic steps. The collection and evaluation of this data takes at least as much time as the work within the families themselves. But here we place great value on the fact this is not carried out at the expense of the parents, which would either be a greater burden for them, or would impair the work with the child.

Before I describe to you the work within the family I would like to present to you the most important points of inquiry for our project:

1. What progress in development and changes in behavior can be achieved by which children in which families?
2. Which teaching techniques have proved themselves effective in the families?

3. Which disturbances appear to be so difficult that they are not influenced by our work within the family? What are the reasons for this?
4. With what parents can one work effectively and which parents are not able to use the methods offered? Which parents drop out?

And last but not least: Which aspects of our services have shown themselves, subjectively, to be the most beneficial and important for the parents?

It was paramount, to produce appropriate instruments for recordkeeping, which were able to document the progress of the children, as well as the growth of competence of the parents.

Neither a diagnostic instrument, nor procedures for the execution of advancement programs for multiple handicapped were available, so we had to develop them ourselves.

Our diagnostic instrument was designed to fulfill the following purposes:

1. to obtain the level of development of the children in essential areas of behavior
2. to show as exactly as possible the child's smallest steps of progress.

Besides which the diagnosis should be relevant for therapy. It should not only serve the gathering of data and classification.

When we looked at the few instruments which were available for the mentally retarded, they did not correspond to those demands:

- Their major point of emphasis is on the representation of deficits.
- They do not possess any true preciseness with the profoundly retarded.
- The tasks include only a small sample from the potential of achievement of the child.
- Basically, a certain capability of verbal communication, guidability and readiness to cooperate is presupposed in test-situations. But this cannot be assumed in most of our cases.
- An unfamiliar environment and a strange test-director are a detrimental influence on the achievement of the child.

Because of these reasons some of our better children at first were relegated into a class of "not testable" supposedly "profoundly retarded" children.

The test-instrument which we developed is in comparison to the usual scales much more comprehensive. The main difference, however, versus traditional testing lies not in the selection of items but concerns the method of execution:

We test in the natural environment of the child. The child is confronted with materials that he knows in an area also familiar to him. In case there are problems, in making initial contact with the child, it is quite possible that the mother will interact with the child and the psychologist remains in the background. The accomplishments which are achieved are recorded on video tape and are categorized afterwards.

We attempt to make the test situation as relaxed as possible to obtain a picture of the behavioral repertoire of the child under permissive conditions.

It gives us important indications on the "how" of learning and on the marginal conditions of the individual learning of the child. It also gives us first indications of a possible teaching and learning strategy. The true value, which such a diagnosis can have for the setting of major points of emphasis within the early-carework should not, however, be overestimated.

It has become apparent that our knowledge of change is of little use if it does not take the following things into consideration: the life-history of the parents, their previous experiences with the child, their present needs and the internal and external burdens of the family, thus excluding the social frame work of the therapeutic procedure.

The failure to gain a portion of the parents as mediators is to be found in this disregard for the needs of the parents.

We got advancement programs for the following areas:

- playing behavior
- basic stimulation of all sensory areas
- imitation and guidance

- activities of daily living
- visual perception
- social behavior
- speech (building, comprehension)
- pressure-free interaction
- mobility

It may surprise you to know that more than 20% of all advancement programs take place in the area of basic stimulation. It may be just as surprising to hear that the area of daily living skills is represented by only 7%. Both can be explained by the extremely severe degree of retardation which is evident in the population of our care.

Exercises in visual perception are done with children of whom it can be assumed that residual vision still exists. The corresponding programs are still in the experimental stage. Among other techniques in this area we are experimenting with a series of slides for visual stimulation.

Besides the training-areas already mentioned, the reduction of social disturbances represents another major field of work. This is quite natural, when one considers that almost 90% of all children show some kind of self-destructive behavior tantrums or stereotypes. I have already reported on the work in this area in a separate lecture.

A central question in the field of a work in early care, that consciously tries to incorporate the parents, is "how" can we teach that, which should happen?

Within our project video feedback has proven itself by far to be the most effective teaching-technique. This is true regardless of the social class of the parents - especially for the training of precise observation.

Through video-feedback there exists an extremely good possibility to make the parents sensitive to the needs of the child. At the same time it makes them sensitive to their own needs and requirements in the interaction with the child. However when giving video-feedback one should be aware not to stress deficits and instructional failure, at least at the beginning. Showing the parents sequences in which they worked properly has been much more beneficial to their motivation. Besides video-feedback "modelling" is considered as an equal effective teaching-technique. Modelling is the technique we use most often.

Role-playing has shown itself to be especially effective in practical life care-programs. In order to give parents an insight into the problems connected with blindness and especially with the difficulties connected with apparently easy daily living skills, we have parents wear blindfolds for different tasks such as eating-skills. Our experience has shown us, that it does not appear useful, to give parents manuals or other written training materials. Theoretical background material does not appear to have any influence whatsoever on the actual behavior of the mediator.

For economic reasons, as well as to arouse the individual initiative of the parents, and to counteract a complete professionalization of the intervention, work with groups of parents has increased greatly. The most important reason for our parent groups is, that parents should be taken out of their isolation, should see that other people have quite similar problems and that they can mutually help each other.

The fundamental proposition is that each professional program is condemned to failure when it is introduced without the element of human understanding and when it lacks the necessary sensitivity for the situation is only too true.

Let me summarize:

Our attempt to address the parents within their natural environment and to give them suitable advice has, on the whole, proven to be effective.

If the teaching techniques are flexible, you can work with parents of all social classes and you can deal with most of the disturbances at home.

Drop outs were to be seen, when the socio-economic situation was problematic, such that parents had considerable substantial problems. In addition we had drop-outs with parents who interpreted the handicap totally irrationally or extremely overestimated or denied the handicap, so that their strategies of solution had a corresponding picture.

In about 10% of all the families, economic and motivational factors built up barriers, which we were not able to overcome.

It appears necessary here to depart from the mediation approach and to search for adequate forms of extra familiar care.

In general: Besides the specific offers for the advancement of the child, it is just as important to care for the interests and needs of the parents. We should place equal value and time on this. They need to have the possibility to simply speak about their situation and all the daily problems confronting them. They must have the opportunity to criticize or change or refuse the programs. But it also should be conveyed to the parents, that encouragement does not have to mean permanent demanding. That an interaction free of pressure, might lead to an increased acceptance and well-being of the child - to a more intensive social integration, which is more important than isolated progress in the sphere of output.

DEVELOPMENTAL INFANT PROGRAM IN HOMES AND HOSPITALS: A PROGRAM THAT MAKES A DIFFERENCE

Frieda Spivack
(U.S.A.)

Visiting DIPHH

Most outsiders are at first quite upset at the thought of visiting DIPHH (Developmental Infant Program in Homes and Hospitals) at Kingsbrook Jewish Medical Center in Brooklyn. Visitors usually have never been in programs for seriously involved infants and young children before and it does make them sad and even depressed to visit. But visiting the DIPHH program is different. I believe they have a chance to overcome these feelings.

One visitor reported "The emphasis is on the children as individuals, not children as poor misfortunates. The children are all provided with every type of comfort and stimulus available and the staff honestly enjoys their work. The ratio of adults to children is very close, the best I've seen at any facility."

Visitors are first taken on a tour of the wards, given the opportunity to interact with some of the children and a short talk is given to them by the head nurse. The head nurse describes some of the disabilities that afflict the youngsters who are seen. Malabsorption disorders, Tay-Sachs, cerebral palsy and various birth defects all affect these children severely enough that they are in need of a long term hospital setting. The future does not seem to hold much for many of them but they are just as deserving of our help as any healthy youngster.

Next during the tour, visitors go to the playroom and participate with a play group for infants and young children who can leave their beds. The room is brightly decorated and equipped with neuro-developmental equipment, music making instruments, a record player and many toys. Again the child/adult ratio is very evident, as there is not a child in the room who isn't being closely attended to at all times. Some children can march on their own, other children are marched around the room, some in wheelchairs, others in baby carriages, up and down through the hospital halls they went. With balloons bobbing up and down attached to their vehicles, special hats on their heads and a wide range of sound making objects in their hands, they marched in formation. Just to see the smiles on the faces of the children and staff indicated that this learning activity was successful. Especially impressive and heartwarming was the segment during which each child had a "We Love You" song sung to them individually mentioning the child by name.

Philosophy of DIPHH

The philosophy and goals of DIPHH are to help staff cope with the initial feelings of helplessness and sadness in relating to severely handicapped young children. They are permitted to express these feelings so that an open atmosphere of love and caring can prevail. The visitors learn that there are two groups of teacher-caregivers in addition to a foster grandparents program at the hospital who work with the children daily from 10 to 2 PM. The first group are Lehman College Early Special teacher interns; these teacher interns work with the children individually three days per week. The second is a staff of therapists, (speech therapist, physical therapist and occupational therapist) and educational coordinator and a parent coordinator who all work with the children during the week. On Saturdays, DIPHH has a sibling and parent program. Siblings join the playgroup activities, parents meet for training and counselling.

It is believed that the DIPHH program should be made available to those who live in the New York City area and elsewhere. Two DIPHH outreach programs are in the South Bronx. These programs are already benefitting from DIPHH products, materials and model. Many of the hospitalized children also live in the same areas. DIPHH services a wide geographic area which also includes the John F. Kennedy Medical Center, Edison, New Jersey.

A Demonstration Model

DIPHH is a model demonstration program funded through the Handicapped Children's Early Education Program, the Office of Special Education, Washington, D.C. In the DIPHH model, the child is cared for and treatment and education are developed with concern in choosing correct goals and techniques after data collection and daily observational note-taking. It is not merely an educational program. It is more a total life program at the hospital and in the home for the chronically involved child. A personalized learning plan is developed for each child. These are much more elaborate than the IEP that is normally used and there is much more input from a transdisciplinary team to coordinate teaching and therapy other than education. Everyone involved with the child participates in transdisciplinary meetings to evaluate each child's progress and plot appropriate developmental plans and activities. Each child's program and services are reviewed monthly to check whether the goals and objectives have been attained and are still suitable. At these meetings, parent priorities are also taken into account and considered very important to be fulfilled. Unduly burdening the family with too many appointments weekly is carefully examined. One-to-one therapy, parent meetings and referral services as well as parent-training programs are available to parents. The staff gives a great deal of themselves, for in addition to their staff role, they help develop and try out new instructional products devised for this population and help disseminate the ideas of DIPHH to other agencies.

The children in this program are referred for long-term medical treatment from other hospitals, usually after the initial hospital assumes that child's developmental and medical progress will be minimal. Yet, the children do improve and some can "graduate" from the hospital back to their homes. DIPHH staff continues to treat and educate the child and the parents at home until other program arrangements are made. Some children will not be as lucky. They will spend many years in the hospital, given their unstable conditions.

Evaluation of DIPHH

Since DIPHH is federally funded and research is part of the proposal plan, assessment of the child through the use of videotaping is done regularly. In addition, the program is evaluated by an advisory council made up of parents and professionals from DIPHH and from other related agencies. Further evaluation and reevaluation take place within the program by the staff. Through personalized learning plans and transdisciplinary meetings, new avenues in working with each child are constantly being evluated, planned and developed. With children who are so severly involved, it is important to find new and effective techniques to unblock learning and facilitate growth. The team approach that is used in planning to meet each youngster's needs demonstrates the cooperation and checks balances among the different professionals, who work with the child.

Two adapted assessments, Early Adaptive Behavior Inventory, Assessment of Basic Capabilities Severely and Specifically and a curriculum, 25 Specially Sequenced Experiences for Severely and Specifically Handicapped Children have been developed especially for this population. A personalized learning plan similar to an IEP has also been adapted especially for this population called Personalized Learning Plan for Children, a resource handbook called Children in Chronic Care in Homes and Hospitals, are all products of the DIPHH program, and all readily available.

The model of DIPHH is clear-cut and readily disseminated. This model can be implemented using the handbook Children in Chronic Care in Homes and Hospitals. The purpose of the program is to help the child, parents and siblings cope and learn while maintaining the family unit and sharing the ideas of this program with them and others. Parents' coping ability is respected, those who need to distance themselves initially, finally do come forward recognizing that the services of DIPHH can help them.

More than anything, this program holds that children and parents receiving early intervention are helped and some of their future problems can be prevented. In the three years of funding, DIPHH has had excellent results with both the child who was able to progress quickly and with the child who progressed slowly. Both types of progress are hard won and most satisfying. Parents, too, have been able to cope better as their child goes through the program. Visitors are welcome to view the program and examine the DIPHH products by calling for an appointment.

ISRAEL MINISTRY OF EDUCATION AND THE EDUCATION OF THE BLIND AND VISUALLY IMPAIRED

Hannah Kadmon
(Israel)

The Ministry of Education, the Department of Special Ed. is involved in the Education of about 380 blind and visually impaired children from the age of 5 to the end of highschool. This number includes all nationalities but does not include profoundly retarded children. Most of the children in Institutes for profoundly retarded are, for the time being, taken care of by the agency for the retarded of the Welfare Ministry. About 65 of the children are totally blind. About 100 are with grave impairment and a great part of them are legally blind according to the Israeli definition of less than 10/200 visual acuity. The rest have various degrees of impairment.

Until 23 years ago the Jerusalem Institute for the Blind was the only type of Education for these children. It was then, in 1958, that myself and my colleague Shoshana Gefen, returned with the M.A. and special training in the States to start the first resource program in Ledugma public school named after H. Sald in Tel-Aviv. Today the Institute serves more and more multiply handicapped blind children and children from rejecting and destructive homes. Also, for the past 2 years it has developed the beginning of a pre-vocational highschool. The Ministry of Education is involved in the school within the Institute but the Institute itself is a private enterprise.

The number of resource classes is now 12. Ten are regular public schools, 1 in a school for the low-retarded and 1 in a school for children with C.P. The load for one resource class is 6 - 8 children, and in some cases, with less hours, 5 children. Next year we hope to open 2 or 3 more such classes. In Tel-Aviv and Be'er Sheva the load of children is bigger (20 and 14 chidlren respectively) and accordingly there are more resource teachers. Our resource classes function as follows: the children attend regular classes and receive special help by a resource teacher both in the regular class itself and in the special resource room; all - according to the needs of each child in coordination with the regular class teacher.

We have 7 itinerant teachers - each serving 5 - 8 children. While we can help a child much more frequently when a resource program is available, the amount of professional help given to a single child in a school is less both in frequency over the week and in the number of hours. Only 4 hours are allotted by the Department of Special Education to each child, per week. Itinerant teachers do not get car expenses and therefore must use public transportation, are limited by weight and size of materials that are possible to carry under such circumstances, and get paid only for the amount of hours at work and not spent on the way. (which is not the case with home teachers who get paid even for the time they commute from one place to the other). For these reasons it is difficult to find teachers who are willing to be itinerant teachers.

The necessity to adjust to the circumstances and find new solutions, a topic to be discussed later, has bred a new type of supportive program. We often ask the principal of the school to recommend one of the teachers on the staff who will give the child any help he needs 4 hours a week. We offer guidance to these teachers. We have found out that the most suitable teachers are those who have been trained to aid children who have emotional problems, reading problems, or classroom-teachers.

Our rationale for mainstreaming children includes the following:

1. The regular school is a sample of real life and professional personnel is there to help our children learn and incorporate ways and means to cope with real life day by day.

2. Most of the problems of the blind stem from the attitudes of society towards them. We hope that the daily encounter between the sighted and blind and visually impaired who are among them, will, over the years, bring about positive changes in these attitudes, and thereby - an elimination of the problems of our children as children and later as adults.
3. Mainstreaming in Israel is the only alternative to an Institute and the only way of avoiding sending a child away from home for lengthy periods.

The criteria for sending a child to either an Institute or to any of the programs in the mainstream includes the assessment of the home as well as the mental capabilities of the child, his other problems or impairments, etc. , and the way the parents feel about the alternatives.

However, there are also existential circumstances that dictate in what type of supportive program the child is to be enrolled. These include the following:

1. The wide geographical scatter of the population of blind and visually impaired children. Some children travel to the closest school that offers resource help up to 1 hour each way.
2. The outlook and demands of parents. Sometimes it seems to the parents that the importance of having the child attend the school in the neighborhood overrides any other consideration, even when we cannot provide the child with professional help.
3. The chance concentration of a group of children in a specific geographical area.
4. The facilities available in the school that offers to mainstream the children, the room to be used as resource classroom, the attitude of the staff to the program, the availability of aids and appliances, etc.

These circumstances demand of us a great amount of flexibility in planning new types of supportive programs and in adjusting existing ones to new needs. This flexible constant adjusting and looking for new solutions is enabled thanks to a close cooperation with the Division of hometeachers of the Ministry of Welfare.

I'll cite 3 examples to demonstrate. I have chosen them because they deal with kindergarten age.

Last year there was a cluster of 4 blind children (1 with residual vision) near Tel-Aviv, at the kindergarten level. With the cooperation of the supervisor over the home teachers in Israel central region the following plan was conceived: The children attend the Tel-Aviv school that had the resource class program for 3 consecutive days each week. The other 3 days they attended their regular neighborhood kindergarten. 2 home teachers prepared a special program for the children and the staff of the resource room contributed preparation and the beginning of braille reading. The children had access to the aids and appliances in the resource room and were in a sense part of the school where they are attending now first grade. It was an exciting year and the children got a very special and well planned program which included trips to stores, workshops, factories, the zoo, and other places to broaden experience.

This year there was again a similar cluster but this time near Natanya. The school in Natanya that has a resource class program includes 2 kindergarten classes. Again, with the cooperation of the same supervisor, Mrs. Risha Drakover, we divided the children 2 in each class, and 1 home teacher and 1 resource teacher worked with the children part of the time individually, mostly on preparation for school such as in arithmetic and pre-reading skills and later the beginning of reading, and part of the time within the kindergarten to aid their integration there.

Preparation for teachers for the specific purpose of teaching the blind and visually impaired does not exist formally in Israel, training schools for teachers or in the university. Over the years more lectures about the blind and partially sighted are given to teachers-to-be in the special education department teacher-training schools and in the Department of Special Education in the universities. We have drawn our staff of teachers from special education. In the University of Bar Ilan, there is a course on the blind and visually impaired child given during one semester.

For the past years, students of this course spent their student teaching in the resource class in Tel-Aviv under our guidance. the period of student teaching is a year and a half - once a week and one concentrated week. Some of our resource or itinerant teachers are graduates of this program. These, and other teachers who were recruited from special or regular education, were given guidance, translated professional literature, lectures, symposiums, workshops, etc. We hold periodical meeting of all the teachers for two purposes: to listen to lectures given by professional people in the field and to share our own successful projects, innovations, experiences and plan together our work. We have a most wonderful staff of dedicated and hard working teachers.

Next year will perhaps see the birth of a special course for teachers of the blind and visually impaired in the Levinsky preparatory school for teachers. The participants will be teachers who are already working in special education and have a certificate to teach in special education programs. The course will last 2 years and will give 300 lecture hours.

We try as much as possible to use public, governmental and community resources to enrich and complement our educational programs. I'll cite only a few examples:

1. In Jerusalem, a joint effort of parents and home teachers brought about extra curricular activities twice a week in the afternoon, in the Institute for the Blind.
2. The children of Tel-Aviv and Natanya Programs spend one afternoon a week in the Vingate School for teachers of physical education. Ms. Edna Medalia whom you will watch in action here at the convention has initiated and carried out this program of physical education and dance for the children under the auspices of the Special Education department of that school.
3. Dr. Ben-Dor of Zefad has arranged for educational camps during the vacations from school, at the community center there. With the help of some of our teachers who also know how to teach the Optacon, she introduced the teaching of using the optacon to a group of blind children, together with typing and other activities - educational and recreational.
4. Children take swimming lessons during the last month of school at the local educational training pools.
5. The Botanical Park of the Tel-Aviv University is developing a corner especially geared for the blind. At least the children of Tel-Aviv, Center and North area have already visited there and enjoyed a "hands on" experience of getting acquainted with the park, under the close and individual guidance of Prof. Veizel and his staff.

Another aspect of the involvement of the Department of Special Education is in "publicity". We aim to increase the awareness of the public in general and the professional staff in schools, hospitals, infants-clinics, etc., in particular. Our purpose is to inform them of the children, the importance of early detection and referral to us; the specific needs of these children and where they can be met; We do it in various ways: lectures, Demonstrations of our work in exhibition or visitation to resource class programs, symposiums with teachers, kindergarten teachers and supervisors over special education, etc. We also try to impart to the regular teachers that they can gain from the mainstreaming in many ways: enrich the modes of learning by activating the other senses, using 3 dimensional materials, asking the whole class to think of ways to demonstrate some topic to the blind child, etc.. In order to strengthen cooperative efforts we have had our first meeting of representatives of teachers, parents, home-teachers and the head of the Institute for the Blind in Jerusalem in the hope to channel all services with full cooperation and help of the Institute.

As you have heard, the Department of Special Education of the Ministry of Education in Israel is involved in various types of supportive educational programs for the blind and visually impaired children. These programs are characterized by flexiibility, cooperation with other agencies and resources and constant striving for improvement.

AN ITALIAN PROJECT FOR A CENTER OF EARLY INTERVENTION ON VISUALLY HANDICAPPED CHILDREN AND FAMILIES

Dr. Massimo I. Campo
(Italy)

First of all I'd like to thank the International Institue for Visually Impaired for inviting me to this Conference that has been for me of great interest.

In order to lighten the context we work in and the problems we had to face to reach our present organization, I am obliged to draw, briefly and in general lines, the steps that the education of handicapped people climbed in Italy and its interactions with social and political development.

At the very beginning the handicapped persons were obligated to choose between a poor life in the family and its restrict environment without any public assistance or aids; and the segregated life in large institutions or asylums, where the lack of any educational, sanitary or rehabilitation treatment reduced their staying to a simple survival. In both cases the peculiar characteristic was emargination from social life and deprivation of a great part of vital stimulation.

In fact the families were abandoned to themselves and the institutionalization meant the break down of any bond with society and even the families.

We owe to handicapped people themselves and to their families the overcoming of this situation, by means of movements and organization of associations whose critics to institutions led to the birth of the first public services specialized for handicapped.

In the second period we see the integration of some of these services in the normal scholastic system and, parallely, the growing of the public health system.
In Italy and in many other countries this phase is not homogeneous and the realization of this step is still to become a truth in most of the regions. But this period shows also a sudden increase of the research in the field and consequently of the teachers and specialized professionals for handicapped people.

This fact gives raise to a separation between technical intervention and participation to social life: many families and the community itself often prefer to leave the problems in the hands of the specialists and, on the other side, very often the specialists don't work towards a real cooperation with the families and the normal environment.

This lack of respect for the human community ecology causes a new form of aseptic and marginating false solution of the handicapped problems and gives the state an absolute power of intervention on which every body depends taking off any decision and responsibility from handicapped people and their families.

The third period is closely linked to the principles of equality for all people that exploded in only in the last years in the educational world and emphasized the rights of the handicapped to have a normal education.

Public services begin to have a community and territorial base and there is an overcoming of the barriers between public institutions and families.

At this level specialized teachers, rehabilitation workers and families cooperate and build on together the educational and social programs for the children.

Unluckily this stage in most of the cases is in our thoughts and hopes but not yet in the actual reality, but I firmly believe that it must be our principal aim.

The history of our team's work follows the same steps: the David Chiossone Institute (born as simple asylum for poor blind people) up to eight years ago represented the traditional institute for the blind.

All the activities and education of blind children and students began and ended within the Institute.

Special schools of all grades were there represented from the infant school to the Academy of music.

Through the activity of blind students themselves, their families and the staff of workers, now it has been transformed in a center of education, rehabilitation and socialization.

The necessary deinstitutionalization led to the constitution of a team (composed by a psychologist, educators, social and rehabilitation workers) which was charged with the transfer on a territorial, familiar basis of the activity previously developed inside the Institute.

Our group, first in Italy, has concluded a process of total integration and mainstreaming in the region of Genoa since 1974 and the good results of our work have been made possible by a continuous cooperation with families, public services, and specialized team of workers.

Since 1980 we have been encharged by National Council of Research with a new program of educational, psychological and social intervention on preschool children and families. Unfortunately, until then our activity on infants and babies had been sporadic and limited to those lucky and rare cases which the network of the health system and of the public services reported to us quite early.

In fact sanitary organization in Italy followed a centralized model which made it impossible for us to get knowledge of the cases of blindness since their diagnosis or their early stage and very often the information about educational services that the parents can get from hospitals, ophthalmological clinics, and other medical centers were not sufficient.

Only in the last year a new legislation act has changed the main lines of health organization on a local basis and consequently many things might improve.

Nevertheless it had been quite clear for us that many damages upon personality, psychomotor development, emotional development and autonomy that we noticed in our children could have been prevented by a very early intervention with families.

Because of the lack of information we decided to provide an easy brochure to be disseminated among hospitals, nurseries and social services in order to give a better awareness about our project, the resources we could provide and, above all, about the importance of early education and rehabilitation.

In the preparation of this brochure we realised that it was the first time that when someone in Italy tried to investigate the matter and that even in the traditional institutes nothing had been done for preschool children and their families. We found also many difficulties in gathering information about international experiences, researches and literature.

Another big problem was the financial one, because of the lack of legislation in the field of early education and intervention on visually handicapped and consequently the difficulty of finding public funds for such an activity. For the experimental characteristic of our work we are supported by the National Council of Research, but I think very important for all of us and an aim of this Conference, to obtain from the International educational organizations official recognition of the necessity of early intervention on handicapped children and families and the engagement to intervene on national govermments for providing special funds and promote research and educational training in this matter.

Our team is now working as follows:

1) We start with a meeting locally with the parents of the child during which the psychologist tries to understand the emotional and practical problems involved in the family by the birth of the visually handicapped child. He points out the opportunity to cooperate with the family and shows the experience of the team in the field.
2) The second step is represented by an accurate ophthalmological diagnosis, made by the local University Clinic. We refer to this clinic for all our cases, having established with the professionals a functioning interaction between oculistic assessments and educational needs.

3) A social worker has the task to familiarize with the parents and the child, becoming acquainted with their cultural background, their environment, their way of life and meanwhile observing the child's behaviour and his/her major and macroscopic needs.
4) A series of visits to the child made it possible for the psychologist, rehabilitation worker and specialized teacher to draw a developmental program.
5) This program is discussed with the parents and specific tasks are divided among them and the specialized professionals.
6) The program starts; some objectives are pointed out in the areas where the needs have been founded, in order to verify the development by means of frequent reassessment on an ongoing basis.
7) The specialized teacher contacts the normal teacher of the classroom in the nursery or infant school where mainstreaming takes place and proceeds to plan with her a cooperation for the program, prepares classroom facilities, physical setting, eventual needed aids.
8) The program takes place in the normal classroom, for communication and socialization skills with other children; in a particular classroom for some specific tasks, eventually in the rehabilitation center for some other needs; and at the child's home.
9) Periodical meetings of the workers and the families are held in order to verify the development and the functioning of the program and to identify new aids or modifications in the model of work.
10) The psychologist coordinates the activities and eventually intervenes with counseling or psychotherapeutic sessions with the parents if needed.

The results of our itinerant team have interested families with visually handicapped children living far from our region and in order to face this problem we thought to the possibility of establishing a project for a temporary residential center for children and families to allow an intensive training of 15 days of life together with our staff to introduce them to the basic principles of education of visually impaired.

Another good reason for creating this kind of structure is represented by the difficulties we often have found in maintaining a good interaction with the families during the first stages of our work.

This period in fact is the hardest one for the workers (who aren't yet acquainted with the families) and for the parents who must face the first problems of education with no continuous help from the team.

The consequence may be the formation of maladjustments in the child because of the lack of reinforcement of learning and educational situation when parents are alone. On the contrary, this sort of life together could be a good help for parents who would have the chance to share their problems, their goals with others in similar situations and prevent in this way anxiety, depressing feelings, fear of mistakes and other worries.

The participated discussion of many items with the various specialists and professionals could be the best pattern of approaching some theoretical problems and, on the practical side, the presentation in form of normal living of many typical situations and the way to face them could be a very easy and informal system of learning together.

Obviously this center would have only temporary functions, a first step toward the constitution of itinerant teams of workers all over the country, but at this moment we believe in its possible usefulness in Italy.

We are very interested in knowing if similar centers do exist somewhere and would like to share our opinions and experience with other educational groups.

EARLY CHILDHOOD EDUCATION AND SUPPORT FOR VISUALLY IMPAIRED CHILDREN (0-6 YEAR) AN THEIR FAMILIES IN BELGIUM

Eliane Bonamie
(Belgium)

A. Presentation

Dear listeners,

The organising committe has asked me to give a short lecture about the situation in Belgium. I consider this invitation as a friendly gesture, and as such I feel happy to contribute to this event from the Flanders in Belgium. I would like you to have a look with me at the early assistance for visually impaired children from 0 (zero) to 6 (six) years.

It has only been a short time since early assistance has been given to families with handicapped children. The fact that attention was paid to this problem can be explained by several elements: attention for the principle of normalisation and integration, shortcomings that were felt in the assistance of very young children, attention for prevention in children's medicine and children's psychiatry, also investigations that stressed the importance of family life.

The break-through of new psycho-therapeutic trends at the end of the fifties has proved to be important too. This kind of assistance is up-to-date and often asked for; moreover I am personally involved in the active extension of such a service. Those facts helped me to make up my choice, when defining the subject-matter of my speech.

B. Early Childhood Assistance and Support for Visually Impaired Children and Their Families

Outlines of the Situation:

Here I want to make a distinction: first I'll deal with the structural aspects of early assistance; secondly I'll try to describe the specific contents of this early assistance of visually handicapped children.

1. Structure

Although there are numerous schools, institutes and daycentres, early childhood education and support remain quite neglected. We have made a scheme of what we think to be important in the organisation of early childhood assistance. This scheme does not claim to be exhaustive. Let us have a look at the different stages possible (See Figure 1).

1.1. Stage of prevention

Although, efforts have been made in the past, for example rubella vaccinations, prevention have not yet been organized systematically enough.

1.2. Stage of early screening, tracing, signalisation and diagnosis

This secondary prevention is the common responsibility of parents and assisting persons, mainly medical teams, consultation offices and the National Service for Children's Welfare. Systematic screening should happen on a periodical basis, with standardized methods and periodical investigations.

Then follows the diagnostic stage : on the basis of test and observation the handicap or deviation is stated.

Till now our main problem has been that people only signalize when the handicap gets a clear shape already. By consequence the assistance can only start quite late.

Therefore, in the group of children from 0-6 years old, we plead for signalization and diagnosis of possible handicaps as soon as possible.

1.3. Stage of referring

Then follows the stage of referring the impaired children to assisting and treating services.

1.4. Stage of early assistance and treatment

Once the impaired child has been referred, the stage of assistance can start. We will deal with those items in the second part.

It is essential that all stages interrelate and work in close cooperation with each other.

The existing services for early childhood education of visually impaired children in Flanders started in the early seventies, mostly by three kinds of originators:
- committees of parents : stress on the problems of accepting of the parents
- centres for ambulant care : stress on the therapeutic treatment of the child
- institutes for visually impaired children, which are evolving nowadays to "regional service centres".

For the moment there isn't any official certification or financial support from the authorities.

Now we meet with the second item of our speech : the contents of the early childhood assistance and support for visually impaired children from zero to six years.

2. Contents of Our Project

2.1. Basic ideas

The parents and the handicapped child have the right to get help : however this help does not take away their own primary responsibility for the education of the child.

The reality of having an impaired child has two aspects
- family life is taken out of its equilibrium
- the harmonious development of the child is disturbed.

In this way we can speak of a problematic educational situation, in which the two aspects of the problem need early diagnosis and assistance starting from the educational situation itself.

2.2 The aim

The kind of help we give aims at
1) assistance and support of the parents or educating persons with regard to - their emotional needs; - their educational problems.
2) assistance of the child with regard to the stimulation of its general development.

Two different professionals are responsible for this process. Essential is the central role of the parents and educating persons in the education of their child. Also the active cooperation between all involved professionals is important.

The final purpose is to provide an integrated early childhood education in the natural environment of the child, with perspectives to stimulate growth for the whole family (and its surroundings).

2.3. Guiding principles

- A well functioning family is one of the situations that stimulate the growth of the young child most of all.
- The child with its handicap is only a part of a complete system.
- The process of helping is a mutual involvement.
- The bearing-power of the family must be respected.
- The parents are free to accept proposals of help.
- Early assistance tries to increase independency and self-development; finally we try to make ourselves superfluous.
- Early assistance is more than therapy.

2.4. Our population

Young visually impaired children and their families. Depending on the kind and, the degree of the handicap we distinguish three groups :
- single blinds / partially sighted children
- visually impaired children with developmental retardation.
- multiple visually handicapped children.

The families belong to all social classes.

2.5. The organisation

1) Both current projects in Flanders are organized by institutes for visually impaired children.

2) A team for twenty children consists of :

- a fulltime educator or development companion/assistant who tries to stimulate the development of the child, together with the parents, during periodical homevisits (= child-oriented work).
- a halftime social worker who tries to support the parents (= parent-oriented work).
- a halftime orthopedagogue (psychologist for handicapped children) and a doctor (neurologist, pediatrician) who follow the program, and if necessary, take a direct and specialised participation (= team-oriented work).
  The orthopedagogue coordinates the whole project.
- the parents themselves play the most central role in the education.
- If desirable, it is possible to appeal to advisory experts, for instance a paramedical team.

2.6. Process of assistance

As mentioned already before, the early assistance has two aspects:

1) Parent-oriented and system-oriented assistance :

- Supporting parents in their process of accepting.
- Reassuring parents in their qualities of educator.
- Controlling the impact of the impaired child's presence on the function of the family.
- Guiding parents in the wide range of provisions and advances.
- Bringing parents into contact with other parents.
- Advising parent-support groups.

This is mainly the job of the social worker.

2) Child oriented assistance and counseling of the parents

The backbone is the stimulation of education and development of the child in the family by the parents in cooperation with the development(companion
(assistant

This happens by modelling, working together, discussions and advices during periodical home-visits (once a week. or once in two weeks, or once in a month - depending upon the needs of the child and his family).

This assistance means :

- helping to realise an optimal education atmosphere.
- helping to observe, understand and stimulate the development of the child; for this, a program can be set up with
  - development - oriented and pedagogical interventions
  - therapeutic intereventions.

It is essential that the parent- and child oriented assistance interact.

When at the age of three the child goes to school in an ordinary nursery or infant school, the assistance goes on. It directs itself then to the two immediate living atmospheres of the child : the family and the infant school.

2.7. Value

The value of early childhood assistance can be found in :

1) The satisfaction of the parents; the biggest support for them is "being understood and informed" by an experienced person.
2) Integrated assistance in the natural surroundings of the child.
3) Early stimulation of development that may minimalize possible retardation and maximize the integration.
4) The fact that the child gets the opportunity of going to an ordinary school in its own neighbourhood, under assistance, by which admission into an institute is prevented /or postponed.
5) The parents can choose for assistance within or outside their family.

Aspects that must be organized :

- Parent committees
- Further teaching of the staff.

C. General Conclusion

We hope for further development of early assistance services and links of cooperation, in the frame work of a public health policy, that gets certifications and financial support from the authorities. The background of our wish is the fact that not only curative but also preventative care of young children needs urgent attention.

So, among others, we think of :

1) Coordination, communication and registration - for the benefit of planning and early assistance.
2) Follow-up and evaluation of the functioning services and the guarantee of the continuation of the process of early childhood assistance. An important part has to be played by the universities.
3) Cooperation and press by all the countries, for an adequate realisation of early assistance of handicapped children and their families.

Dear public, I hope to have given you in this introductory talk an outline of the services for an early childhood assistance of young visually impaired children that are growing in Flanders.

I thank you for your attention.

SCHEME :

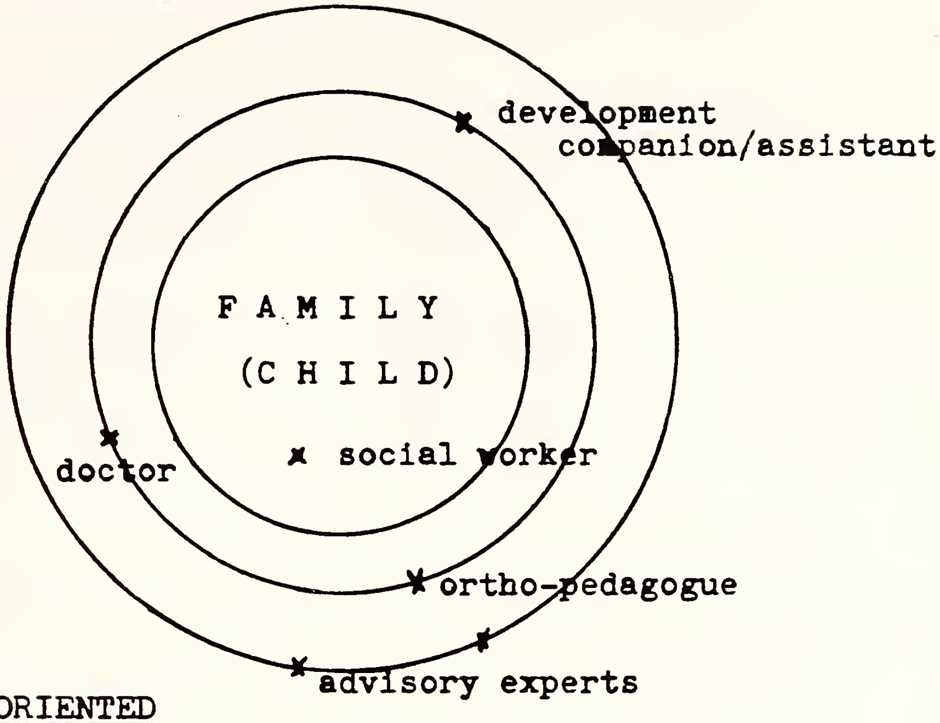
OUTLINE OF SERVICES

PRESCHOOL AGE

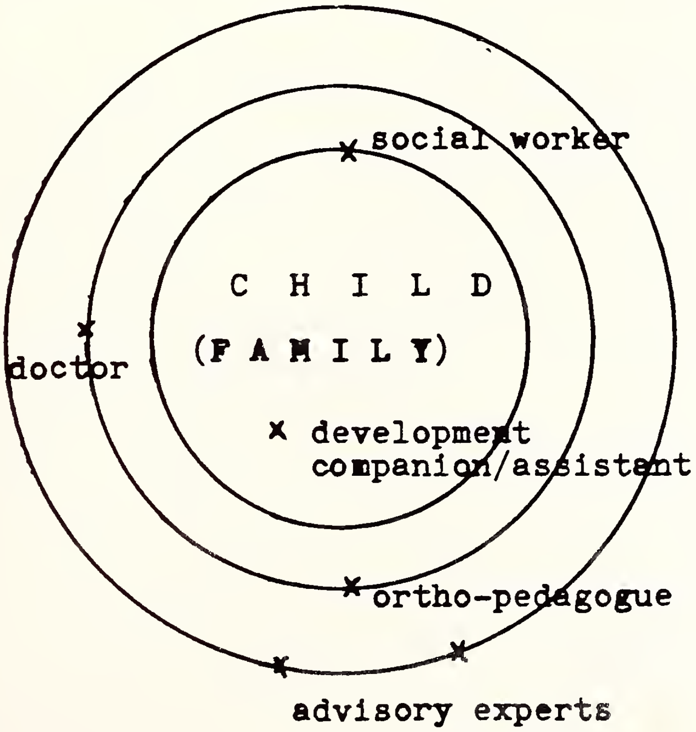
	Structurally existing	**Informally existing**
1. PREVENTION	**- General : a.o. NWK** **- Specifec : vaccinations**	heredity-advise
2. EARLY SCREENING TRACING DIAGNOSIS SIGNALISING	NOT SYSTEMATICLY NOT OFFICIALLY CERTIFIED NOT FINANCED	WHO IS SIGNALISING - parents - medical teams of children's hospitals - spec. consultation centres
3. REFERRING		WHO : cfr. signalising
4. EARLY ASSISTANCE AND SUPPORT		SOME INITIATIVES TAKEN BY - GROUPS OF PARENTS - CONSULTATION CENTRES - INSTITUTES

MODELS

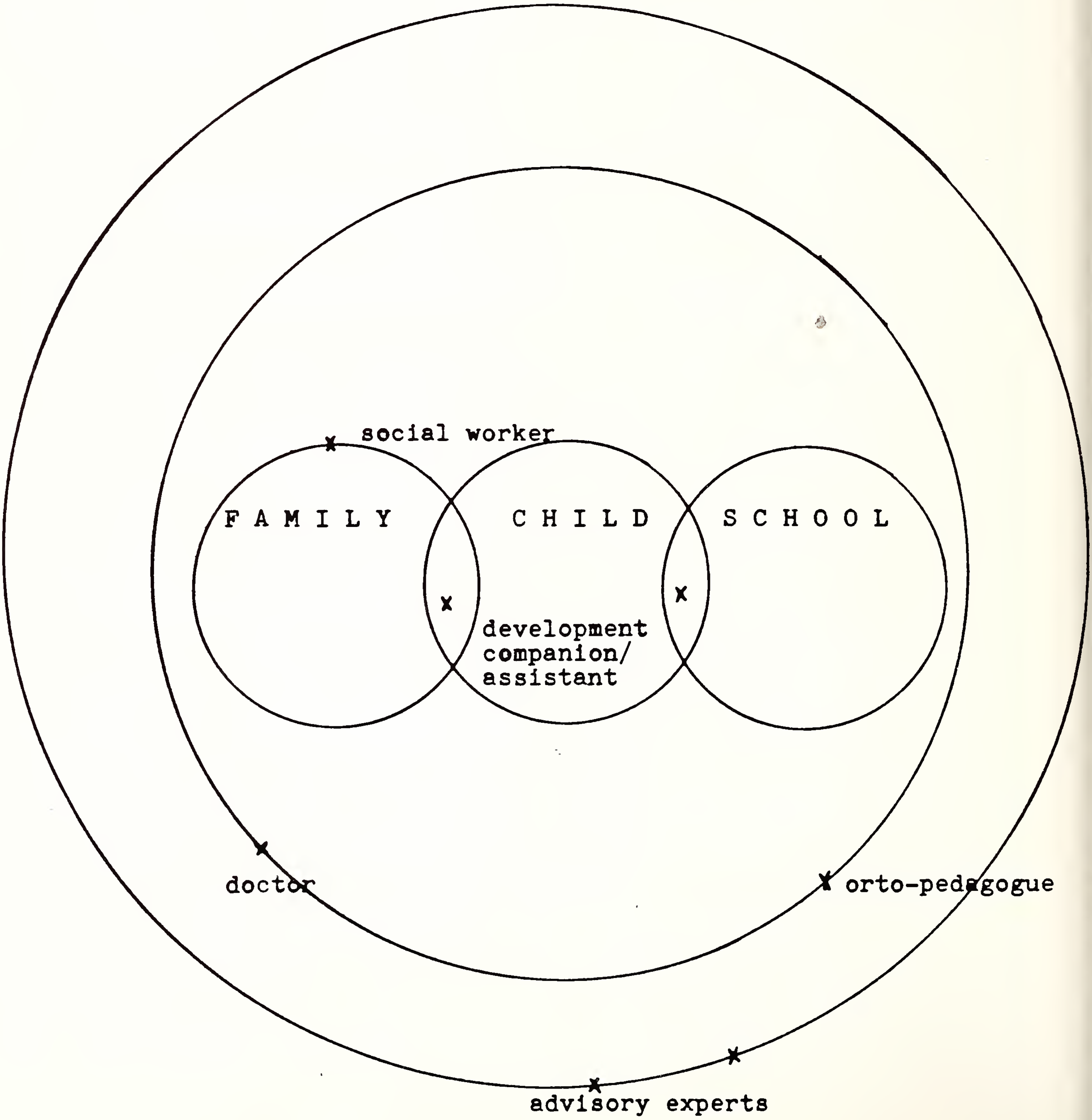
1. PARENT-ORIENTED



2. CHILD-ORIENTED



3. CHILD-ORIENTED : HELP IN THE FAMILY AND IN THE SCHOOL



PROBLEMS OF VISUALLY HANDICAPPED CHILDREN IN AUSTRIA

Maria Rauch
(Austria)

I've been invited here to talk about the problems of visually handicapped children and their parents in Austria. I could do that - rather dryly - in stating a catalogue of various problems which perhaps may be very similar for every country in the western world.

But I don't want to do that. What I'd like to do is to show up these problems in a few examples out of the life of my own family, because I'm not a scientist but simply the mother of a visually handicapped child and I'm quite sure that I share these problems with a lot of people sitting in this room and living all over the world. I want to tell you in which way, usual or unusual, we have been trying to solve them and perhaps there are a few ways which may be interesting for some of you or at least give you hope in going on. For nothing in this world is hopeless as long as you try to make the best of it.

But let's start with our daughter's birth in 1970. It's bad enough that her eye defects were not found out in the birth-clinic although it must have been obvious to any medical-trained person, but it did not matter in our case. It was found out soon afterwards by a children's specialist and we were sent to an eye specialist.

He was quite friendly and he told us, in medical terms, all the defects which he could find in the baby's eyes. But there was no word about what that meant for education or for the child's further life. We were left alone with medical terms and a handicapped child - and we were not even aware of that fact at that very moment. We were not told any person or place where we could find help for ourselves and by that way for our child.

And that's the first problem. Now, eleven years later and having mother-child-examinations in Austria too, medical attention might be better and perhaps defects are found out earlier, which can be very important. But there's still very little or no psychological care for parents at all to help them overcome the first shock. And the care and control for handicapped children in early childhood is still very fragmentary, especially in rural provinces. And that in spite of the fact that nowadays nearly everybody knows that rehabilitation should start as soon as possible and that training from early childhood on may be able to compensate a lot.

So we mustn't stop asking clinics and government for help and more partnership between them and we parents during the first period of shock and despair. We must ask them not only for psychological care but also for a parents' training which may enable us to become real partners in rehabilitation work.

At the age of four the eye defects of our daughter had grown worse and we went from one specialist to another. Some of them thought we were too ignorant to understand anything and so they didn't even mind telling us what had happened to our child. Others were too sensitive to tell us the truth. Neither way helped us very much. They just had the effect that we were quite desperate feeling that something terrible had happened and started reading every medical book we came across - which didn't help us either. That was the point when I wanted to give up my job and start studying medicine to become an eye-specialist. There were two facts that kept me away from doing it. The first was that I loved my work as a teacher too much and the second that I had enough practical sense to realize that it would be positively too late for our daughter before I even approximately would have finished my studies.

So I went on looking for people who had finished these studies and had done it in the most excellent way - in other words we were looking for the best specialists we could find. Our daughter was - then - operated on twice and in spite of excellent medical care her situation grew worse. At the age of five we were told that medicine couldn't do anything else, there was no more help for our child, she was going to be blind.

And still no word about educational help, about psychological care about technical aids - just pityful words for a pitiable little girl. But we were - at least - now fully aware of the fact that we would have to educate a severely handicapped child.

Fortunately it didn't take us long to overcome the first great shock. And at that moment we chose a way which we had - for a long time - consciously avoided to go. We went to a homeopath. After all eye-specialists he was our last hope and - as we know now - our best attempt. I couldn't say that the homeopathic treatment combined with diet is easy to live with but after a few weeks the greatest danger was banned and an improving process started which now - six years later - is still going on. But although there have been a few situations within those last six years in which the effectiveness of the homeopathic treatment was proved there are still some doctors - fortunately not all - who simply ignore that fact, who were not ashamed of telling me that the improvement was fate as well as the deterioration had been fate.

This hostility between usual and unusual methods of medical treatment is another big problem we parents have to suffer from. Perhaps we all could be a lot further on if there were more cooperation in that field. We and our children would urgently need that cooperation.

And moreover it's a great pity that many parents don't even know that they might perhaps find help in - at least up to now - unusual methods.

And so we mustn't stop asking the medical staff not only to inform about new methods in their own usual kind of medicine but also to try to get and to give information about different and perhaps unusual methods in medicine.

At the age of six our child came to school and she got a wonderful teacher. And for the first time there was real partnership between specialist and parents. She really told us a lot of useful things which we should have been told years before. And it was she who told us about a technical aid which would bring a lot of help. We wanted to buy it - but it was not very cheap. And so I started to fight in ministeries, offices and insurances. It took me a year of time, a heap of letters and an innumerous number of telephone calls to get what I wanted - but I got it at last. And the success succeeded all expectations. We didn't only get back part of the costs but the full amount.

And at that very moment I started to think of all those parents who wouldn't be able to write appropriate letters, who wouldn't be able to explain their needs to all those civil servants in all those offices and I thought of their children who - because of this disability of their parents - might not get all technical aids they would perhaps need.

And that was the point when I wanted to start parents' information work. Everybody whom I told about it thought that the idea was wonderful but it took me more than half a year until a social organization - closely related to a political party - agreed with paying for the costs. And so I started a telephone service and a periodical paper very soon finding out that it was impossible to limit informtaion on visually handicapped children. In the meantime this information work has been running very successfully for more than two years and for all kinds of handicapped people of all ages. But - naturally - the visually handicapped child maintains a special place there. And I'm just trying to form a parents support group within the Austrian Association for the Blind. And I will not stop that work until every blind child in Austria will be provided with early childhood training. At the moment - having started a teacher's training for blind and visually handicapped children with the intention of becoming a specialist from the legal point of view - I'm trying to work out a programme for early childhood training in Austria considering foreign experiences. That's one of the reasons why I'm so happy to have been able to come here and have the opportunity to meet so many people who know such a lot about it. Many thanks by the way to Dr. Chigier.

But let's return to parental problems which unfortunately don't stop at the child's age of seven. During those first years at school our daughter's teacher and we chose an - at least in Austria - unusual way in her education. She was trained in black-ink-writing as well as in Braille-scripture - the latter in private lessons which we still have to pay ourselves. This way seemed to be quite successful because a girl who was thought to be blind is now by the help of visualtek reading any book or newspaper and finding telephone numbers out of a telephone directory. Within three years she has - either by training or by homeopathic treatment or diet or by fate, I don't know what it was but it doesn't matter for me - more than doubled her visual faculty. This fact - proved and acknowledged by ophthalmologists - is the only fact that matters for our child. For a girl who is thought to be blind she is moving very safely and after having mobility training in Germany as it was not available for her in Austria is going home from school by public transport on her own (she has to change from tram to underground and to tram again and the way takes nearly one hour's time). Moreover, she is an excellent skier - you know it's our national sport - and a good gymnast, she is ice-skating, roller-skating, swimming and riding a bicycle in a closed familiar area. Whatever we did in education we did under the aspect of educating a non-handicapped child but always being fully aware of having a handicapped child and trying to provide her with all the additional aids she would need to obtain the same chances and the same possibilities as any other child. And always trying to be careful not to claim too much of her. But obviously that was not enough, because there was another fight waiting for us. When Claudia had finished primary school for the partially sighted our specialists wanted her to attend secondary modern school at the institute for the blind - with no black-ink-writing and no visual stimulus - and that in spite of her excellent report and the fact that in another four years she will have to attend high school with non-handicapped children. We said 'no' and again I wrote a very long paper stating our opinion and confirming it with testifications of three different eye-specialists and of a psychologist. And I sent this paper directly to the ministry of education and the school council of Vienna. The parents wish and opinion were respected at last but I'm quite sure that we hadn't succeeded if we - being teachers ourselves - hadn't known all our rights as well as we had. And only the day before yesterday, just before I left Vienna I was phoning my husband from the airport and he told me that he had received a phone-call telling us that a commission had decided to send our daughter to the blinds' institute from next year on. I was so furious that I would have liked to rush back to town and directly into the school council of Vienna, if it hadn't been the day before an Austrian holiday and I knew that nobody would be working there late in the afternoon. But I'm prepared for another fight when I'll be back in Vienna next Monday. And I won't be afraid to ask the law court of constitution if parents don't have the right to choose their children's school freely. And if they say 'no' I will be able to find a private school for her. But I won't give up and I want to ask all parents to stand to their opinion and their ways as long as they seem to be best for their children.

In a few years our child probably will attend grammar school. There's no special grammar school for blind pupils in Austria - and I'm glad about it. But there's also no integration programme for blind grammar school pupils in Austria - and I'm not glad about that, because I know of some excellent programmes in other European countries.

We also miss integration programmes for vocational schools which would open at least a few more professions for the visually handicapped. We all know how important it is for handicapped people in professional life to obtain an even higher qualification than non-handicapped - and so we must not stop asking for the best programmes and the best teachers.

But I don't want that you all think now that the situation in Austria is so much worse than the situation in other countries. I love to live there and I wouldn't like to live anywhere else. And although early childhood training 0 - 3 is rather fragmentary or non-existent at all we have a kindergarten for visually handicapped children and one for blind children. And as a beginning we shall have a parents' information weekend in the blinds' institute next September. We have a school for partially sighted with excellent teachers and I still can't understand why my daughter shouldn't stay there. We have a residential school for the blind which has been one of the first in Europe and both schools by themselves claim a leading position in the German-speaking area. We even have an integration programme for primary school children in Vienna which works very successfully. The problem is that both schools seem to be very sceptical against innovations or new attempts especially if they don't come from a specialist but from an ordinary mother. So you see that in Austria the only chance is to become a specialist and now you will understand why I've started studying again.

Within these studies I've looked across our borders and I've heard of an excellent early childhood training in the area of Nurnberg. Since 1974, 48 children and their parents have been trained by three home-teachers and three educators and the assistance of a social pedagogue and a psychologist. They practice home-training as well as central training, accompanying help in regular kindergartens as well as parents training and psychological care. And I've heard of an excellent high school integration programme in Hamburg and of the enormous success in integrating blind children in Denmark. And I've heard a lot more since yesterday when I met so many people here interested in the same problem.

I'm sure that many of these problems wait to be solved in other countries, too. So - at the end - I want to ask everybody - teacher and physician, rehabilitation worker and parent to do their best in trying to provide our visually handicapped children with the best we can afford - because no situation is hopeless as long as we make the best of it.

FROM THEORY TO PRACTICE

Edna Medalia
(Israel)

As a teacher of physical education and as one who is involved in the establishment of and operation of sports facilities for the disabled in Israel (and as a member of the Technical Committee of the International for Sport for the Disabled, which organises the Olympic Games of the Disabled, which decided on events and on the rules and regulations according to each classification of disability), I could not stand on the sidelines and hold my tongue when the statistics revealed to me that there are 342 blind children in Israel. I decided to try and find the way in which to become involved which those of my countrymen who have long toiled are doing so now and will continue to do so, towards the maximal development and progress of these children in all aspects of social life in our country of Israel.

I came to sport for the blind as a result of the Yom Kipur War, when the blind population within the ranks of our disabled veterans rose by 100 per cent. In the course of this work with blind/adult civilians I discovered that when exercising under controlled conditions, in a gymnasium, we could attain accuracy in movement; however, the moment we attempted to go to freer movement, such as the explosive motions required in sprint, for example, all the distortions of movement reappeared. From this I realised that the blind could and should be trained as early as possible in order to prevent the development of such incorrect movements.

Two years ago I came in contact with the first child I had met who was born blind. He was 4 years old and through him I met another 15 children of his age, who learned together in kindergarten run by the Institute for Child Development at the Tel Hashomer Hospital. A few months later we began working with these children, using the lawn outside. Here we found that many of the children fell as a result of lack of balance or simply lack of muscle tone; and when we tried to perform exercises with them and asked them to raise their arms, we found that this concept was not at all clear. Where is up? How can one move in space? What is space? And what is each one's relationship to his surrounding space? How can we develop feedback relating to motor skills, physical fitness balance required and utilized in the execution of any motor skill? How can we develop coordination and consciousness of body image which will contribute to his confidence and a positive self image which is the basis of the "I am strong and stable" thesis which permits a person to fit into society?

How does one do this when the functional disability is lack of vision - where the all important element of imitation is lost?

To find the answers to these questions I turned to the literature: Activities for Individuals with Handicapping Conditions by Professor Dolores Geddes; Sport by Professor Lorenzen and Physical Education for Blind Children by Charles Buell; and last but not least, to my exercise book, in which I wrote notes of the lectures given in 1972 by Dr. Innenmoser and Professor Kosel of the Deutsche Sporthochschule; and to my notes from my visit to Betostelen in Norway in 1975, where I was attached to a blind child for a whole week of varied sports activity, from horseback riding, through swimming, canoeing, and so on.

We began, then, to work with the Tel Hashomer children in the swimming pool. In the first lesson we described and familiarized them in detail with the physical elements of the swimming pool - size, walls, floor space, water, and so on, and sat them at the pool's edge, where they could play with their feet in the water. We then put water wings on them and took them into the water, one by one. We found that they adapted very quickly to the new environment, becoming confident about floating and playing quite fearlessly in this unfamiliar element. Thereafter they were tremendously enthusiastic about the Swim Days at kindergarten.

The kindergarten has not functioned this (1980-81) school year and the children were transferred to a Netanya kindergarten; the older children went to the Henrietta Szold Model School in Tel Aviv.

During the 1979-80 school year I was also working with blind children who were studying in the regular program at the Henrietta Szold School. We worked with these children mostly in the stadium, on running, jumping, ballthrowing and catching. This year (1981-82) we began to work in the gymnasium on the childrens requirements according to age.

(Age 3-5)

Characteristics

Physical Growth	Recommended Activity
1. Children in the slow growth stage, where the skeleton grows rapidly. Bones are cartilageneous and soft. Mostly large muscle development. Spine develops slowly.	1. Utilisation of large muscles - running, chasing a sound, jumping, climbing and use of small apparatus.
2. Limbs develop at their own rate. At age 5 the legs develop relatively fast.	2. Stress on free and normal posture in all stages of movement.
3. Heart and lungs are small relative to height and weight; the heart grows rapidly.	3. Frequent relaxation and rest times. Special movements for arm and shoulder trunk and leg movements, especially climbing.
4. Around age 5, right handedness is established. About 90% are right-handed.	
Motor Development	
1. Development of limited skills, limbs and trunk - body control limited.	1. Development of balance. Throwing and catching a ball with a bell.
2. Development of motor skills not equal, and inconsistent. The child loses interest and facility in one skill while learning another.	2. Work with music develops sense of rhythm and coordination.
3. The child is full of energy and restless.	
Emotional and social development	
1. The child is concerned with himself; his decision-making ability develops; doesn't want to share.	1. Making friendships is important.
2. They enjoy working as a group and with their peers.	2. Ladder activity, horizontal bar, balance apparatus, slides skates, parallel tandem, integrated pairs blind and seeing children;
3. Girls and boys have similar interests. The boys tent to argue more than the girls.	3. Helping grown-ups; carrying out assignments and creating his own activity.

(Age 6-8)

Physical

Growth	Recommended Activity
1. Skeletal and Muscular development consistent and moderate. The bones harden, the limbs lengthen.	1. Running for the large muscles. Pulling and ball throwing and catching, endurance development.
2. Heart and lungs develop fast but are still small relative to height and weight.	2. Longer periods of activity but still brief, with rest periods.
3, Mainly aerobic physical activity, rapid activity, tiring and reviving fast.	3. Skills for arms and fingers.
4. Arm/muscle strengthen, rate of development of large muscles of trunk and legs faster than small muscles.	4. Posture.
5. Spine continues to develop.	

Motor development	
1. Motor skills continue to develop; the child can successfully execute more complicated tasks of delicacy and speed.	1. Self-expression through movement and sound.
2. Shoulder and arms develop.	2. Dancing.
3. The child stands straight and sits well, spontaneously.	3. Balancing.
4. The child can relax his muscles during activity, by changing his position.	
5. Balance improved - hopping, skipping, standing on one leg, working to music.	

Emotional and social development	
1. Child is interested in the activity more than in the results.	1. Rhythmic activity is essential.
2. Development of self confidence.	2. Encouragement at all stages.
3. Continues to develop socially, likes group activity.	3. Each activity should be brief.

On the 10th November 1980, a decision was taken to adopt the group of 14 blind children which had been formed from the Szoled and Netanya schools, within the framework ot the Special Education Trent in the Zinman College for Physical Education Teachers, at the Wingate Institute.

During this past school years, then we have had the assistance of students of the trend who have gained practical experience in the field and we hope they will, upon graduation, be able to "spread the good work" and bring these new techniques to the remainder of our 342 blind children all over Israel. Today you shall see a model lesson with this group of children. I would like to take this opportunity to express our thanks to Kibbutz Shefayim, which hosted us a number of times; and in particular to their workshops, which built our parallel tanden bicycle. With this machine we feel we have developed a natural and workable method by which to integrate seeing children with blind children in and enjoyable and unlimited sports activity - an activity which may be started early in life and may continue - as we say in Hebrew - "Until 120."

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(n.d.)

DATE	ISSUED TO
	Reference Copy
6/18/79	~~Kay Ferrell~~
5/4/85	~~Kay Ferrell~~

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